HP-UX 11i Version 2 Installation and Update Guide

HP Integrity Servers and HP Workstations

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United States

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To ensure that you receive the latest edition, you should subscribe to the appropriate product support service. See your HP sales representative for details.

Related Document: *HP-UX 11i Version 1.6 Installation and Configuration Guide*, July 2002, 5187-1087, (HP-UX 11iV1.6), CD (Instant Information), and web (**`http://www.docs.hp.com`**)

New editions of this manual will incorporate all material updated since the previous edition. For the latest version, see the HP-UX 11i v2 documentation on the web:

`http://docs.hp.com/hpux/os/11iv2`

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About This Guide

This guide describes cold-installing and updating HP-UX 11i v2 on HP Integrity Servers and HP Workstations, and assumes that you are the system administrator and familiar with installing and maintaining software on the system.

This guide applies to the October 2003 version of HP-UX 11i v2. If you need information for a previous version of HP-UX 11i, go to the web:

`http://docs.hp.com`

If you need to set up your system in different languages, please refer to *Configuring HP-UX for Different Languages*, available on the Instant Information DVD and on the HP documentation web site:

`http://docs.hp.com`

A localized version of the manual is available with localized media kits. Latest versions are available at the HP documentation web site.

Typographic Conventions

We use the following typographical conventions.

audit (5)	HP-UX manpage. *audit* is the name and *5* is the section in the *HP-UX Reference*. On the web and on the Instant Information DVD, it may be a hot link to the manpage itself. From the HP-UX command line, you can enter "`man audit`" or "`man 5 audit`" to view the manpage. See *man* (1).
Book Title	Title of a book. On the web and on the Instant Information DVD, it may be a hot link to the book itself.
`Command`	Command name or qualified command phrase.
`ComputerOut`	Text displayed by the computer.
Emphasis	Text that is emphasized.
Emphasis	Text that is strongly emphasized.
KeyCap	Name of a keyboard key. Note that **Return** and **Enter** both refer to the same key.
Term	Defined use of an important word or phrase.
`UserInput`	Commands and other text that you type.
`Variable`	Name of a variable that you may replace in a command or function or information in a display that represents several possible values.
`[ ]`	Contents are optional in formats and command descriptions. If the contents are a list separated by `|`, you must choose one of the items.
`{ }`	Contents are required in formats and command descriptions. If the contents are a list separated by `|`, you must choose one of the items.
...	Preceding element may be repeated an arbitrary number of times.
`|`	Separates items in a list of choices.

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1 Welcome to HP-UX 11i Version 2

This chapter introduces you to the new features, media kit contents, operating environments, supported cold-install and update paths, guide contents, and other resources of HP-UX 11i Version 2 (B.11.23).

What You Will Find in This Chapter

- "Welcome to HP-UX 11i Version 2" on page 18
- "Introduction" on page 19
- "How to Use This Guide" on page 20
- "What is HP-UX 11i v2?" on page 21
- "Media Kit Contents" on page 24
- "HP-UX 11i v2 Operating Environments" on page 25
- "Other Sources of Information about This Release" on page 27
- "The Next Steps" on page 30

To complete the review in this chapter, we estimate you require 1 hour. Please note that your time may vary.

Welcome to HP-UX 11i Version 2

HP-UX 11i Version 2 is the newest release of HP-UX 11i for the Intel® Itanium® architecture. This enterprise release offers a full range of HP-UX Operating Environments, including systems management and high-availability software products. Itanium-based systems offer significantly better price/performance and performance scalability than systems based on current architectures, and HP-UX 11i v2 provides the best way to preserve your investment through the transition from PA-RISC systems to Itanium-based systems.

Hewlett-Packard's enterprise computing business has carefully planned the transition to Itanium-based systems, placing a premium on customer and partner investment protection. HP-UX 11i v2 maintains compatibility with HP-UX 11iv1 on PA-RISC through the following:

- Common “look and feel”
- Application Build Environment compatibility (source code compatibility)
- Data compatibility
- Binary compatibility

HP-UX 11i v2 offers these industry firsts for Itanium-based systems:

- Support for HP-UX 11i, Linux, and Windows running in separate hardware-based partitions on the same computer
- 64-way performance scaling
- iCOD (Instant Capacity on Demand) and Pay-Per-Use (PPU)

HP-UX 11i v2 brings to Itanium-based systems the full power of HP 11iv1, the #1-rated UNIX operating system (OS) in the world (DH Brown 2002 UNIX OS Review; see the web site:
`http://www.hp.com/hpinfo/newsroom/press/2002/020530b.html`

HP-UX 11i v2 on Itanium® takes its place alongside HP-UX 11i v1 on PA-RISC as an industry mainstay for mission critical enterprise applications.

Introduction

HP-UX 11i Version 2 is the latest release for most Itanium-based HP-UX systems. The Release ID for HP-UX 11i Version 2 is B.11.23, and we use the term HP-UX 11i v2 throughout this guide. The HP-UX 11i v2 Operating Environments (OEs) are integrated and tested software solutions containing the operating system and selected applications.

Precision Architecture Reduced Instruction Set Computing (PA-RISC)-based systems should continue to run HP-UX 11iv1 (Release ID B.11.11) or earlier releases. HP-UX 11i v2 does not run on PA-RISC-based systems.

HP-UX 11i Release Names and Release Identifiers

With HP-UX 11i, HP delivers a highly available, secure, and manageable operating system that meets the demands of end-to-end Internet-critical computing. HP-UX 11i supports enterprise, mission critical, and technical computing environments. HP-UX 11i is available on both PA-RISC systems and Itanium-based systems.

Each HP-UX 11i release has an associated release name and release identifier. The *uname* (1) command with the `-r` option returns the release identifier. The following table shows the releases available for HP-UX 11i.

Table 1-1 HP-UX 11i Releases

Release Identifier	Release Name	Supported Processor Architecture
B.11.11	HP-UX 11i v1	PA-RISC
B.11.20	HP-UX 11i v1.5	Intel® Itanium®
B.11.22	HP-UX 11i v1.6	Intel® Itanium®
B.11.23	HP-UX 11i v2	Intel® Itanium®

How to Use This Guide

To help ensure a successful cold-install or update of HP-UX 11i v2, we recommend that you review this guide before proceeding to cold-install or update the operating system or an operating environment on your system. This guide provides detailed information regarding both the hardware and the software that together makeup your new system.

IMPORTANT We provide any last-minute cold-install and update information in the *Read Before Installing or Updating to HP-UX 11i Version 2* DVD booklet (MPN: 5187-2734) that comes with the HP-UX 11i v2 media. Be sure to review this booklet before continuing.

This guide contains the following chapters and appendixes:

Chapter 1, “Welcome to HP-UX 11i Version 2,” on page 17

Chapter 2, “Choosing a Migration Path,” on page 31

Chapter 3, “Installing and Updating System Requirements,” on page 51

Chapter 4, “Preparing to Migrate to HP-UX 11i v2,” on page 63

Chapter 5, “Cold-Installing HP-UX 11i v2,” on page 79

Chapter 6, “Updating to HP-UX 11i v2,” on page 93

Chapter 7, “Verifying System Install or Update,” on page 117

Chapter 8, “Installing Patches and Applications,” on page 125

Chapter 9, “Configuring and Maintaining HP-UX 11i v2,” on page 137

Appendix A, “Data Collection Tables,” on page 141

Appendix B, “Known Problems and Troubleshooting,” on page 145

Appendix C, “Controlling Memory Utilization of VxFS 3.5 on HP-UX 11i v2,” on page 155

Appendix D, “Software Distribution Media,” on page 161

Appendix E, “Web Resources,” on page 179

What is HP-UX 11i v2?

HP-UX 11i v2 is the latest Enterprise Release on Itanium-based systems with extended software solutions and new hardware platforms.

Features and Applications Available in HP-UX 11i v2

The HP-UX 11i v2 release includes the following major features and enhancements:

- All Operating Environments: Foundation OE, Enterprise OE, Mission Critical OE, Minimal Technical OE, and Technical Computing OE
- Support for 64-way capable Itanium-based version of Superdome with 64-CPU performance scaling
- HP-UX Partition Manager support for HP-UX 11i, Windows, and Linux running in separate partitions
- Multi-OS system management for HP-UX, Windows, and Linux running in separate hard partitions
- Support for 1 terabyte of main memory
- Support for all previously released Itanium 2 servers: HP Integrity rx5670 and HP Integrity rx2600
- Cell local memory for Superdome/Itanium-based performance scalability
- PCI and PCI-X Doorbell for one-touch online I/O card removal or replacement
- Six more dynamically tunable kernel parameters: `dbc_max_pct`, `dbc_min_pct`, `nflocks`, `nfile`, `maxfiles`, and `fs_symlinks`
- nPars (hard partitions)
- VxFS/VxVM/CVM 3.5 (Veritas File System, Veritas Volume Manager, Veritas Cluster Manager) with up to 1024 ACLs (Access Control Lists), 2 terabyte maximum file size, and 4 terabyte maximum file system size. VxFS is the default file system
- Performance improvements in Aries dynamic code translator (executes PA-RISC binaries on Itanium systems) versus HP-UX 11i v1.6 (B.11.22)
- iCOD (instant Capacity on Demand)
- Pay Per Use (PPU)
- Dynamically Loadable Kernel Modules for File System
- Java Virtual Machine (JVM) v1.4.1 with 32- and 64-bit hotspot

- HP Workload Manager
- HP-UX Bastille for secure system configuration
- Faster system boot and memory dump through greater parallelism
- Hyperfabric2
- Application binary compatibility with previous HP-UX 11i releases for Itanium (HP-UX 11i v1.5 (B.11.20) and HP-UX 11i v1.6 (B.11.22))
- Application source code compatibility with HP-UX 11i v1 on PA-RISC
- Dynamic Loader
- Interrupt Migration
- HP WBEM Services for HP-UX for monitoring and controlling a diverse set of resources.
- AutoFS+2.3
- On-Line Addition and Replacement of I/O Adapters
- IPv6 support
- SNAplus2
- Mozilla Application Suite (Mozilla is the default browser)
- HP-UX Secure Shell
- New and improved kernel configuration mechanism

You can find the complete list of applications included in the HP-UX 11i v2 release in the HP Application Availability Matrix:

`http://www.software.hp.com/MATRIX`

NOTE

HP is continually adding support for additional hardware and software. Contact your HP Service Representative for information about additional support or refer to the latest edition of this document on **`http://docs.hp.com`**.

Features Unavailable in HP-UX 11i v2

In comparison with HP-UX 11i v1 or HP-UX 11i v1.6, HP-UX 11i v2 does not provide support for the following:

- PA-RISC systems
- Virtual Partitions (vPars)
- 32-bit support
- Support of update from HP-UX 11i v1.6 (B.11.22) workstations to HP-UX 11i v2 (zx2000 and zx6000)
- Business Copy/BCV/snapshot features on high-end disk arrays
- Fabric connectivity with Fibre Channel Mass Storage
- OSPF agent for `gated`
- PA-RISC cross development on Itanium-based processors
- HP-supplied PA-RISC mode archive system libraries
- HP-supplied Itanium-based archived system libraries
- Mix and match between Itanium-based and PA-RISC binaries and/or 32-bit and 64-bit objects
- Framebuffer graphics support
- Boot from floppy disk

In addition, administrators and developers should make note of the following important change and limitation:

- No 32-bit version of this OS will be made available.

TIP

Additional information about these changes, limitations, and differences between HP-UX 11i v1.6 (B.11.22) and HP-UX 11i v2 (B.11.23) are described further in the *HP-UX 11i Version 2 Release Notes*.

Media Kit Contents

This guide is part of the HP-UX 11i v2 media kit. Please review the contents, which also include the following DVDs and documents:

- **HP-UX 11i v2 (B.11.23) DVD** — Contains the HP-UX operating system (OS), operating environments (OE), required networking software, Update-UX, Ignite-UX, and online diagnostics.
- **HP-UX 11i v2 (B.11.23) Applications DVD** — Contains HP-UX application software.
- **HP-UX 11i v2 Instant Information DVD** — Contains current HP-UX manuals, release notes, and white papers. See the DVD booklet for more information.

  HP-UX 11i v2 Internet Express DVD — A collection of Open Source Web, Internet, and security services which have been tested and qualified on HP-UX. Internet Express is an easily installed, configured, and administered product.
- ***Read Before Installing or Updating to HP-UX 11i Version 2*** — Provides last-minute information for HP-UX 11i v2. Read this DVD booklet before cold-installing, updating, or configuring HP-UX.
- ***HP-UX 11i Version 2 Release Notes*** — Describes new features and functionality changes for HP-UX 11i v2. The release notes show the difference between HP-UX 11i v1.6 and HP-UX 11i v2. After you cold-install or update HP-UX, this file is on the system in `/usr/share/docs`. Release Notes are also available on the Instant Information DVD and on the web:

  `http://docs.hp.com/hpux/os/11iv2`
- ***HP-UX 11i Version 2 Installation and Update Guide*** — Describes the media kit, and instructions to cold-install or update to the latest release of HP-UX. The guide is also available on the web:

  `http://docs.hp.com/hpux/os/11iv2`

NOTE For the latest information on HP-UX software releases, go to the web:

`http://www.software.hp.com/RELEASES-MEDIA`

HP-UX 11i v2 Operating Environments

Operating Environments are tested and integrated application bundles designed to work with the operating system and provide the functionality needed for your system's purpose. The following list details the currently available HP-UX 11i v2 OEs:

- **HP-UX 11i v2 Foundation Operating Environment (FOE)** — Designed for the demands of Web servers, content servers and front-end servers, this OE is provided at no-charge and includes applications such as HP-UX Web Server Suite, Java, and Mozilla Application Suite. This OE is bundled as `HPUX11i-OE`.
- **HP-UX 11i v2 Enterprise Operating Environment (EOE)** — Designed for database application servers and logic servers, this OE is an extra-cost package containing the HP-UX 11i Foundation OE and additional applications such as GlancePlus Pak to enable an enterprise-level server. This OE is bundled as `HPUX11i-OE-ENT`.
- **HP-UX 11i v2 Mission Critical Operating Environment (MCOE)** — Designed for the large, powerful back-end application servers and database servers that access customer files and handle transaction processing, this OE is an extra-cost package containing the Enterprise OE, plus applications such as MC/ServiceGuard and Workload Manager to enable a mission-critical server. This OE is bundled as `HPUX11i-OE-MC`.
- **HP-UX 11i v2 Minimal Technical Operating Environment (MTOE)** — Designed for workstations running HP-UX 11i v2, this OE is provided at no charge and includes the Mozilla Application Suite, Perl, VxVM, and Judy applications, plus the OpenGL Graphics Developer's Kit. This OE is bundled as `HPUX11i-MTOE`
- **HP-UX 11i v2 Technical Computing Operating Environment (TCOE)** — Designed for both compute-intensive workstation and server applications, this extra-cost OE includes the HP-UX 11i v2 MTOE plus extensive graphics applications and Math Libraries. This OE is bundled as `HPUX11i-TCOE`.

For more information about the contents of the operating environments, see Appendix D, "Software Distribution Media," on page 161.

The following table details the supported operating environments for servers and workstations:

Table 1-2 Supported Operating Environments

	FOE	EOE	MCOE	MTOE	TCOE[1]
HP Commercial Servers	X	X	X		X
HP Workstations (and Technical Servers)				X	X

1. You can use TCOE on either workstations or compute-intensive technical servers.

Mission Critical OE Support

If your system is on HP Mission Critical Support, discuss the proper method of cold-installing and updating the OE with your HP Customer Engineer.

Other Sources of Information about This Release

In addition to this guide, you have many other sources of information related to the HP-UX 11i v2 release available to you at the web site:

`http://docs.hp.com/hpux/os/11iv2`

The following documents, which are found at this web site, may be of particular interest:

HP-UX 11i Version 2 Release Notes, MPN **5187-2723**

Managing Systems and Workgroups, Edition 6, MPN **5187-2216**

Ignite-UX Administrator's Guide, Edition 11 MPN **B2355-90788**

Software Distributor Administrator's Guide, MPN **B2355-90789**

Getting Started with Software Package Builder, MPN **5187-3646**

HP-UX System Partitions Guide, MPN **5971-4742**

Read Before Installing or Updating to HP-UX 11i Version 2, MPN **5187-2734**

HP-UX 11i Version 2 Reference, MPN **B2355-60103**

Additionally, some or all of these documents are available on the Instant Information media and in printed form.

HP Documentation Web Site

Hewlett-Packard provides a web site where the latest HP-UX documentation and updates are available:

`http://docs.hp.com`

HP-UX 11i v2 Instant Information Media

The Instant Information provides HP-UX documentation on media, either CD or DVD. Documentation supporting the release can be accessed before the software is installed. It provides improved online presentation, print quality, and search capabilities.

HP-UX Welcome Page

The HP-UX Welcome Page on your HP-UX 11i v2 system contains pointers to information to help you use your HP-UX system.

Manual Pages

For the HP-UX 11i v2 release, the manual (man) pages are available on the HP-UX Welcome Page of your system, on the Instant Information under the title *HP-UX Reference*, through the use of the `man` command, and on the web:

`http://docs.hp.com/hpux/os/11iv2/index.html#HP-UX%20Reference%20(Manpages)`

README Documents

README documents are media booklets that contain information about the installation process that may not appear in the *HP-UX 11i Version 2 Installation and Update Guide*. Any product contained in the release may have a README document, so several README documents may be included. The README document specific for HP-UX 11i v2 is included with your media kit.

Release Notes

The *HP-UX 11i Version 2 Release Notes* describe what is new, changed, or obsolete in this release as compared to previous releases. These release notes apply only to features that are part of the HP-UX 11i v2 operating system.

The purpose of the *HP-UX 11i Version 2 Release Notes* is to define the major differences between HP-UX 11i v1.6 (B.11.22) and HP-UX 11i v2 (B.11.23).

Release notes are found in the following locations:

- HP-UX 11i v2 Instant Information DVD
- `/usr/share/docs` on your HP-UX 11i v2 system. Also included in the `/usr/share/docs` directory are files containing information about previous releases of HP-UX
- **`http://docs.hp.com`**

White Papers on HP-UX

All white papers associated with the HP-UX 11i v2 release are available at the following web site:

`http://docs.hp.com/hpux/os/11iv2`

The Next Steps

In this chapter, you have completed the following review:

- "Welcome to HP-UX 11i Version 2" on page 18
- "Introduction" on page 19
- "How to Use This Guide" on page 20
- "What is HP-UX 11i v2?" on page 21
- "Media Kit Contents" on page 24
- "HP-UX 11i v2 Operating Environments" on page 25
- "Other Sources of Information about This Release" on page 27

After reading about the media contents and HP-UX, you are now ready to start reviewing the appropriate method to migrate to HP-UX 11i v2, either cold-install or update. Continue with the following chapter:

- Chapter 2, "Choosing a Migration Path," on page 31

2 Choosing a Migration Path

This chapter provides information and scenarios to help you decide the most appropriate method to migrate your system to HP-UX 11i v2.

What You Will Find in This Chapter

- "If You Have an Existing HP-UX 11i v2 System" on page 32
- "Migrating from Previous HP-UX Releases" on page 33
- "Deciding Which Method to Use" on page 36
- "Install-time Security Considerations" on page 43
- "The Next Steps" on page 49

To complete the review in this chapter, we estimate you require one hour to read about the install and update migration paths, security, and choose a method. Please note that your time may vary.

If You Have an Existing HP-UX 11i v2 System

If your system is already running HP-UX 11i v2, you may only need to install one or more patch bundles to bring your system up-to-date or to enable new hardware.

Check the following references:

- “Keeping Up to Date with the Latest Critical Patches” on page 126
- `http://itrc.hp.com`
- `http://software.hp.com`
- Application release notes, readme files, and DVD booklets for the latest information

Migrating from Previous HP-UX Releases

You can **cold-install** HP-UX 11i v2 and its accompanying operating environment on any supported system listed in “Supported Servers and Workstations” on page 56.

You can also choose to **update** to HP-UX 11i v2 from any of the supported paths listed in Table 2-1. Updating from any other release directly to HP-UX 11i v2 is not supported.

If you are updating from a previous HP-UX 11i v 2 release, see “If You Have an Existing HP-UX 11i v2 System” on page 32.

Supported Cold-Install Paths to HP-UX 11i v2

Cold-install is supported on both Itanium-based HP servers and workstations. For a list of supported systems, see “Supported Servers and Workstations” on page 56.

You can cold-install from most HP-UX 11i v1.6 (B.11.22) systems and all HP-UX 11i v2 (B.11.23) systems.

IMPORTANT

If you have an LVM-based HP-UX 11i v1.6 system, you can use an HP-UX 11i v2 Ignite-UX server to cold-install HP-UX 11i v2 on your system.

If you have an VxVM-based HP-UX 11i v1.6 system, you cannot use an HP-UX 11i v2 Ignite-UX server to cold-install HP-UX 11i v2 on your system.

For more details, please see the Ignite-UX web site:

`http://software.hp.com/products/IUX`

Supported Update Paths to HP-UX 11i v2

IMPORTANT Update is *only* supported on HP Servers (see "Supported Servers and Workstations" on page 56 for a list of supported servers).

The following table details the supported update migration paths:

Table 2-1 OE Update Migration Paths to HP-UX 11i v2

From Current Configuration	To the following HP-UX 11i v2.0 OS/OE[a]
HP-UX 11i v1.6 Base OS	• Base OS • Foundation OE • Technical Computing OE (Technical Servers only)
HP-UX 11i v1.6 OE	• Foundation OE
HP-UX 11i v1.6 TCOE	• Technical Computing OE (Servers only)
HP-UX 11i v1.6 MTOE	NO Supported Paths (Cold-install only)
HP-UX 11i v2 Base OS	• Base OS • Foundation OE • Enterprise OE • Mission Critical OE • Technical Computing OE
HP-UX 11i v2 Foundation OE	• Foundation OE • Enterprise OE • Mission Critical OE
HP-UX 11i v2 Enterprise OE	• Enterprise OE • Mission Critical OE
HP-UX 11i v2 MCOE	• Mission Critical OE
HP-UX 11i v2 TCOE	• Technical Computing OE (Servers only)

Table 2-1 OE Update Migration Paths to HP-UX 11i v2 (Continued)

From Current Configuration	To the following HP-UX 11i v2.0 OS/OE[a]
HP-UX 11i v2 MTOE	NO Supported Paths (Cold-install only)

a. Contents of the HP-UX operating environments are listed in Appendix D, “Software Distribution Media,” on page 161.

Update Path Notes

- If you are planning to update to a higher level server operating environment from a current HP-UX 11i v1.6 server operating environment (for example, HP-UX 11i v1.6 Foundation OE (base OE) to HP-UX 11i v2 Enterprise OE, you must proceed using the following steps:

  1. Update to HP-UX 11i v2 Foundation OE
  2. Update to the desired premium OE (in this case, the Enterprise OE)

- You cannot downgrade to a lower level operating environment (for example from Enterprise OE (EOE) to Foundation OE (FOE), or Technical Computing Operating Environment (TCOE) to Minimum Technical Operating Environment (MTOE)
- You cannot update between server operating environments (FOE, EOE, and MCOE) and technical operating environments (MTOE, and TCOE)

Deciding Which Method to Use

Now that you have evaluated your system and ordered any additionally needed hardware, you need to decide whether to **cold-install** or **update** to HP-UX 11i v2 on your system.

Cold-installing using Ignite-UX — This method overwrites everything on the target disk. Use cold-install for new systems and on existing systems when overwriting the root (/) volume will not cause loss of applications or data. The process described in this guide cold-installs a single system from local media. If you plan to install many systems simultaneously, you should plan on using an Ignite-UX server. Ignite-UX is available on the HP-UX 11i v2 DVD. Additional information on Ignite-UX and newer versions are available on this web site:

`http://software.hp.com/products/IUX`

Updating using Update-UX — This method uses the `update-ux` command and Software Distributor (SD) tools to selectively overwrite the operating system and application software from media or a network source depot. An advantage of performing an update is that it leaves user data, configuration, and applications in place. Updating to HP-UX 11i v2 is limited to the supported paths listed in Table 2-1, “OE Update Migration Paths to HP-UX 11i v2,” on page 34.

Depending on your system’s current configuration, here are some general guidelines to help you choose the best migration path to HP-UX 11i v2.

When to Cold-Install

We recommend using Ignite-UX to cold-install HP-UX 11i v2 in the following situations:

- You are managing several systems with similar OS configurations.
- You need fast, predictable deployment.
- Your disk space needs reconfiguration. See “How to Plan Your Disk Space Needs” on page 55.
- Your systems are organized with clean separation of the OS from user, application, and data files.

- Your system configuration is not listed as a supported update path (see Table 2-1, “OE Update Migration Paths to HP-UX 11i v2,” on page 34).
- You are migrating an HP Workstation to HP-UX 11i v2.

You can cold-install from *any supported* configuration (see “Supported Servers and Workstations” on page 56).

See Chapter 4, “Preparing to Migrate to HP-UX 11i v2,” on page 63 for more information about preparing your system for cold-install. Then the cold-install process using Ignite-UX is described in Chapter 5.

When to Update

You can update rather than cold-install HP-UX 11i v2 when you are updating from supported HP-UX 11i v1.6 systems or from HP-UX 11i v2 (see Table 2-1, “OE Update Migration Paths to HP-UX 11i v2,” on page 34 for specific details). Other scenarios include:

- You are concerned about recovering unique applications and data on your root volume, and do not want to write over non-OS files when cold-installing HP-UX 11i v2.
- Each system has a unique configuration.
- Current disk space is sufficient for HP-UX 11i v2 (see “How to Plan Your Disk Space Needs” on page 55).

NOTE Update is not supported on HP Workstations.

See Chapter 4, “Preparing to Migrate to HP-UX 11i v2,” on page 63 for details on how to prepare your system to update to HP-UX 11i v2. Then the update process is described in Chapter 6.

Installing Network Drivers

Installing HP-UX 11i v2 will install a minimum set of default networking drivers that apply to the system (see Table D-4, “HP-UX 11i v2 Always-Installed Network Drivers,” on page 174).

You may need to select or specify other available networking drivers to enable other cards on your system (see “HP-UX 11i v2 Always-Installed Network & Mass Storage Drivers” on page 174). This can easily be done during the cold-install or update by following the instructions in “Cold-installing HP-UX 11i v2” on page 83.

Cold-Install Considerations

The following sections provide additional information to assist you in your decision to cold-install HP-UX 11i v2.

HP Service Partition

During cold-install or recovery, Ignite-UX will change the boot disk partition layout to create a new HP Service Partition (HPSP). This 400MB partition created at the end of the boot disk is used by Online and Offline Diagnostics to hold tools and system data.

The order of the partitions on the boot disk will be:

1. EFI OS Boot Partition (ESP)
2. HP-UX File System (HPUX)
3. HP Service Partition (HPSP)

During back-up and recovery operations, Ignite-UX will not save or restore any changes you make to the HPSP.

Instant Ignition

For customers ordering new systems with the “Instant Ignition” option (also known as “factory integrated”), the cold-installation process described here has already been performed. Skip this chapter and proceed to install application software. See Chapter 8, “Installing Patches and Applications,” on page 125.

Alternate Cold-Install Methods

In addition to the procedures described in this chapter, you can cold-install your system using the following methods:

- Install from Software Depots

  Use Software Distributor commands to create depots containing OS, OE, and other software bundles, then install from the depot using Ignite-UX. For help with this method, see the *swinstall* (1M) manpage and *Software Distributor Administration Guide* and *Ignite-UX Administration Guide*.

- Install from Golden Images

  If you need to install the same OS/OE and applications on many systems in your network, use an Ignite-UX server as explained in the *Ignite-UX Administration Guide*. With Ignite-UX, you can create a single install image (golden image) containing OS/OE bundles, application bundles, and patch bundles, then install the image on multiple systems in your environment.

IMPORTANT Please note that if you are running an Ignite-UX server on HP-UX 11i v2 and have HP-UX Bastille enabled, then cold-installing a golden image onto another system will require additional steps. For the latest information, please see the following web site:

`http://www.software.hp.com/products/IUX`

Using the HP-UX 11iv2 DVDs on an HP-UX 11iv1 (B.11.11) System

If you plan to read the HP-UX 11iv2 DVDs on an HP-UX 11iv1 system, or cold-install HP-UX 11iv2 from a depot on an HP-UX 11iv1 system, then you need to install the `PHKL_28025` patch in order to read the DVDs.

The `PHKL_28025` patch is in the `GOLDBASE11i` bundle as of June 2003, which you can find on the Support Plus media for HP-UX 11iv1 or at the following web site:

`http://itrc.hp.com`

`PHKL_28025` supersedes `PHKL_25760`.

Update Considerations

HP Service Partition Is Not Created During Update

If you are updating from a supported update path (see "Supported Update Paths to HP-UX 11i v2" on page 34), HP Service Partition will *not* be created or modified. `OnlineDiag` will continue to work properly. Offline Diagnostics, however, will work with reduced functionality.

In order to have full Offline Diagnostics functionality, you must:

1. Update your system.
2. Back up your system with either `make_net_recovery` or `make_tape_recovery`.
3. Re-configure your boot disk partition layout to include the HP Service Partition.
4. Restore your system with either `make_net_recovery` or `make_tape_recovery`. Consult the *Ignite-UX Administration Guide* for more details about `make_net_recovery` and `make_tape_recovery`.
5. Update the Offline Diagnostics with the latest version of the *HP Itanium-Processor Family Offline Diagnostics and Utilities* CD. See "About Offline Diagnostics" on page 71.

How to Determine If You Have an HP Service Partition

To determine if an HP Service partition exists on your system, enter the following command on your physical disk volume (here named `/dev/rdsk/c2t1d0`):

```
idisk -p /dev/rdsk/c2t1d0
```

Example 2-1 idisk Output from Disk without HP Service Partition

```
idisk version: 1.31
EFI Primary Header:
        Signature                = EFI PART
        Revision                 = 0x10000
        HeaderSize               = 0x5c
        HeaderCRC32              = 0x20e10a24
        MyLbaLo                  = 0x1
```

```
        AlternateLbaLo            = 0x43d671f
        FirstUsableLbaLo          = 0x22
        LastUsableLbaLo           = 0x43d66fc
        Disk GUID                 = 59609df4-c295-11d7-8001-d6217b60e588
        PartitionEntryLbaLo       = 0x2
        NumberOfPartitionEntries  = 0xc
        SizeOfPartitionEntry      = 0x80
        PartitionEntryArrayCRC32  = 0xc0a93cc2

Primary Partition Table (in 512 byte blocks):
    Partition 1 (EFI):
        Partition Type GUID       = c12a7328-f81f-11d2-ba4b-00a0c93ec93b
        Unique Partition GUID     = 5960a1be-c295-11d7-8002-d6217b60e588
        Starting Lba              = 0x22
        Ending Lba                = 0xfa021
    Partition 2 (HP-UX):
        Partition Type GUID       = 75894c1e-3aeb-11d3-b7c1-7b03a0000000
        Unique Partition GUID     = 5960a1fa-c295-11d7-8003-d6217b60e588
        Starting Lba              = 0xfa022
        Ending Lba                = 0x430e021
```

You should notice that under the "`Primary Partition Table (in 512 byte blocks)`" heading, only two partitions exist on the system: the EFI boot partition, and the HP-UX partition. This example shows that you will need to create the HP Service Partition after updating to HP-UX 11i v2.

Default-Installed Bundles Cannot Be Deselected

There is currently no support for deselecting default-installed bundles (see Appendix D, "Software Distribution Media," on page 161) from Update-UX. Consequently, all default-installed bundles will be installed with the Operating Environment.

Using the HP-UX 11iv2 DVDs on an HP-UX 11iv1 (B.11.11) System

If you plan to read the HP-UX 11iv2 DVDs on an HP-UX 11iv1 system, or update HP-UX 11iv2 from a depot on an HP-UX 11iv1 system, then you need to install the `PHKL_28025` patch in order to read the DVDs.

The PHKL_28025 patch is in the GOLDBASE11i bundle as of June 2003, which you can find on the Support Plus media for HP-UX 11iv1 or at the following web site:

http://itrc.hp.com

NOTE PHKL_28025 supersedes PHKL_25760.

Install-time Security Considerations

Beginning with HP-UX 11i v2, HP-UX Bastille (B6849AA) is included as default-installed software on the Operating Environment media and can be installed with Ignite-UX or Update-UX.

HP-UX Bastille is a security hardening/lockdown tool that can be used to enhance security of the HP-UX operating system. It provides customized lockdown on a system-by-system basis by encoding functionality similar to Bastion Host and other hardening/lockdown checklists.

NOTE For more information about HP-UX Bastille, see the *HP-UX 11i Version 2 Release Notes* and *Managing Systems and Workgroups*.

At install- or update-time, you can choose one of the following security configuration bundles with each bundle providing incrementally higher security:

Table 2-2 Predefined Security Configuration Bundles

Bundle Name	Configuration File Name[a]	Description
Sec00Tools[b]	-	The install-time security infrastructure; no security changes
Sec10Host[c]	HOST.config	Host-based lockdown: no firewall; many some common clear-text services turned off, excluding Telnet and FTP
Sec20MngDMZ[c]	MANDMZ.config	Lockdown: IPFilter firewall blocks incoming connections except common, secured, management protocols
Sec30DMZ[c]	DMZ.config	Full lockdown: IPFilter blocks all incoming connections except HP-UX Secure Shell

a. Configuration files are installed to /etc/opt/sec_mgmt/bastille.
b. This is a default-installed bundle.
c. This is a selectable bundle.

Security Choice Dependencies

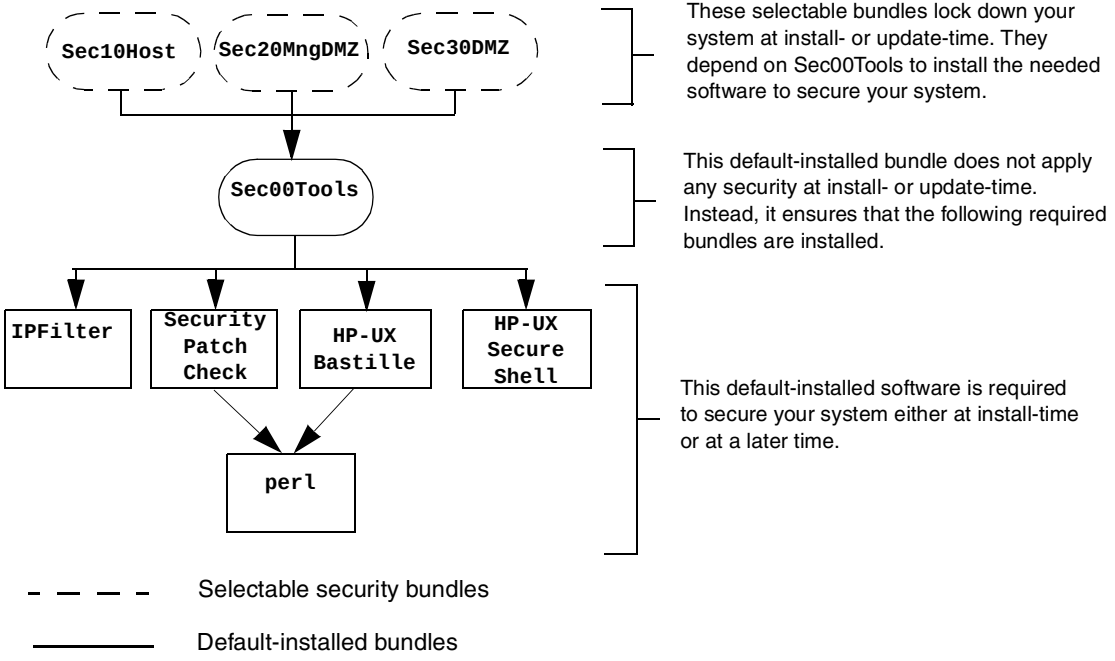
The Sec00Tools security infrastructure bundle is default-installed on your system. While this bundle does not implement any security changes at install- or update-time, it does ensure that the required software (see Figure 2-1) is installed. By installing Sec00Tools, you can opt to run HP-UX Bastille at a later time to lock down your system.

Alternately, you can lock down your system using one of the following selectable security configuration bundles at install- or update-time:

- Sec10Host
- Sec20MngDMZ
- Sec30DMZ

These bundles are dependent on the Sec00Tools bundle.

Figure 2-1 Install-time Security Software Dependencies



Secured Services and Protocols

Each security configuration bundle provides incrementally higher security by locking down various protocols and services. HP-UX Bastille uses a series of questions to determine which services and protocols to secure. Using one of the Install-time Security Configuration bundles applies a default security profile, simplifying the lockdown process.

The following tables detail the services and protocols affected by the security bundles, listed in Table 2-2, if you choose to apply one at install- or update-time.

- Table 2-3 lists the security settings for `Sec10Host`. These settings also apply to `Sec20MngDMZ` and `Sec30DMZ`
- Table 2-4 lists the security settings applied with `Sec20MngDMZ`, *additional* to the settings in Table 2-3
- Table 2-5 lists the security settings applied with `Sec30DMZ`. These settings are additional to the settings applied in Table 2-3 and Table 2-4

IMPORTANT

Review these tables carefully. Some of the locked down services and protocols may be used by other applications, and *may* have adverse effects on the behavior or functionality of these applications. For example, ServiceControl Manager and ParMgr rely on WBEM for part of their functionality; `Sec30DMZ` blocks all incoming WBEM connections via IPFilter.

You can change the security settings configured at install-time by running HP-UX Bastille after installing or updating your system. For more information about using HP-UX Bastille, see the *Managing Systems and Workgroups* manual, or the *HP-UX Bastille User's Guide*, located on your system at `/opt/sec_mgmt/bastille/docs/user_guide.txt`

Table 2-3 Host-based Sec10Host Install-time Security Settings[a]

Category	Actions
Logins and Passwords	Deny login unless home directory exists Deny non-root logins if /etc/nologin file exists Set a default path for su command Disable root logins from network tty Hide encrypted passwords Disallow ftpd system account logins Disable remote X logins
File System, Network, and Kernel	Modify ndd settings [b,c] Restrict remote access to swlist Set default umask Enable kernel-based stack execute protection
Daemons	Disable ptydaemon Disable pwgrd Disable rbootd Disable NFS client daemons Disable NFS server Disable NIS client programs Disable NIS server programs Disable SNMPD
inetd Services	Deactivate bootp Deactivate inetd's built-in services Deactivate CDE helper services Deactivate finger Deactivate ident Deactivate klogin and kshell Deactivate ntalk Deactivate login, shell, and exec services Deactivate swat Deactivate printer Deactivate recserv Deactivate tftp Deactivate time Deactivate uucp Enable logging for all inetd connections
sendmail	Run sendmail via cron to process queue Stop sendmail from running in daemon mode Disable vrfy and expn commands

Table 2-3 Host-based Sec10Host Install-time Security Settings[a] (Continued)

Category	Actions
Other Settings	Deactivate HP Apache 2.x Web Server[d] Set up cron job to Security Patch Check[b]

a. Security settings listed here also apply to Sec20MngDMZ and Sec30DMZ
b. Manual action may be required to complete configuration. See /etc/opt/sec_mgmt/bastille/TODO for more information, after install or update.
c. The following ndd changes will be made:
```
ip_forward_directed_broadcasts=0
ip_forward_src_routed=0
ip_forwarding=0
ip_ire_gw_probe=0
ip_pmtu_strategy=1
ip_send_source_quench=0
tcp_conn_request_max=4096
tcp_syn_rcvd_max=1000
```
d. Settings only applied if software is installed

Table 2-4 Additional Sec20MngDMZ Install-time Security Settings[a]

Category	Actions
inetd Services	Includes all disabled inetd services in Table 2-3 and: Deactivate ftp Deactivate telnet
IPFilter Configuration[b]	Block incoming DNS query connections Block incoming HIDS administration connections[c,d] Configure IPFilter to allow outbound traffic, block incoming traffic with IP options set, and all other traffic except for HP-UX Secure Shell, HIDS agent, WBEM, web admin and web admin autostart.[e]

a. Applies all security configuration settings in Table 2-3
b. IPFilter rules are applied via a custom rules file located at /etc/opt/sec_mgmt/bastille/ipf.customrules
c. HP-UX Host IDS is a selectable software bundle and only available for commercial servers
d. Settings only applied if software is installed

e. Manual action may be required to complete configuration. See `/var/opt/sec_mgmt/bastille/TODO.txt` for more information, after install or update.

Table 2-5 Additional `Sec30DMZ` Install-time Security Settings[a]

Category	Actions
IPFilter Configuration[b]	Includes all IPFilter settings in Table 2-4 and: Block incoming HIDS agent connections[c,d] Block incoming WBEM connections[e] Block incoming web admin connections Block incoming web admin autostart connections Block all traffic except HP-UX Secure Shell

a. Applies all security configuration settings in Table 2-3 and Table 2-4
b. IPFilter rules are applied via a custom rules file located at `/etc/opt/sec_mgmt/bastille/ipf.customrules`
c. Settings only applied if software is installed
d. HP-UX Host IDS is a selectable software bundle and only available for commercial servers
e. WBEM is required for several HP management applications including ServiceControl Manager and ParMgr

The Next Steps

In this chapter, you have completed the following review:

- “If You Have an Existing HP-UX 11i v2 System” on page 32
- “Migrating from Previous HP-UX Releases” on page 33
- “Deciding Which Method to Use” on page 36
- “Install-time Security Considerations” on page 43

After deciding which method you will use to migrate to HP-UX 11i v2, you are ready to start preparing your system for either cold-install or update:

- Chapter 4, “Preparing to Migrate to HP-UX 11i v2,” on page 63

IMPORTANT Be sure to review the *Read Before Installing or Updating to HP-UX 11i v2* DVD booklet for situations not discussed in this chapter that may apply to your system.

3 Installing and Updating System Requirements

This chapter will help you assess the current state of your system prior to cold-installing or updating to HP-UX 11i v2.

What You Will Find in This Chapter

- "Factory Ignited Systems" on page 52
- "System Requirements" on page 53
- "Supported Servers and Workstations" on page 56
- "HP-UX 11i v2 Network, Mass Storage, and SCSI Drivers" on page 57
- "Keeping Up with Firmware Recommendations" on page 58
- "Identifying Model, OS/OE, and Software" on page 60
- "The Next Steps" on page 62

IMPORTANT Review the *Read Before Installing or Updating to HP-UX 11i v2* DVD booklet. It describes last-minute information.

To complete the steps in this chapter, we estimate you require 1 hour to compare the system requirements specified in this guide with your system. Please note that your time may vary.

Factory Ignited Systems

If you have a system that is already running HP-UX 11i v2, such as a system that was **factory ignited**, you may only need to check for the latest, critical patches to have the most up-to-date system.

Check the following references:

- “Keeping Up to Date with the Latest Critical Patches” on page 126
- `http://itrc.hp.com`
- `http://software.hp.com`
- Application release notes and readme booklets for the latest information

System Requirements

To cold-install or update HP-UX 11i v2, you must have the following:

- Supported system, see “Supported Servers and Workstations” on page 56
- HP-UX 11i v2 OE and application media (two DVD set)
- 512 MB memory, minimum
- 1 GB swap space, minimum
- 1 GB disk space to accommodate EFI Boot Disk and HP Service Partition

NOTE

If your system has less than 1GB of memory, you may need to manually set VxFS tunables for optimal performance *after* cold-installing or updating to HP-UX 11i v2. For more information about these tunables see Appendix C, “Controlling Memory Utilization of VxFS 3.5 on HP-UX 11i v2,” on page 155.

Extra space needed with TCOE and MTOE

Cold-installing or updating the HP-UX 11i v2 Technical Computing OE and the Minimal Technical OE installs all CDE languages, rather than just a selected language. To remove unneeded CDE language bundles after installing the TCOE or MTOE list them using `swlist` and remove unneeded bundles using `swremove`. See Chapter 7, “Verifying System Install or Update,” on page 117 for example uses of `swlist` and `swremove`.

Disk Space Allocation for File Partitions

Depending on your system’s purpose, you may need to determine how much disk space you will need for each file partition before you cold-install or update to HP-UX 11i v2. For example, if you plan to install applications from other vendors, you may need to modify the size of the `/opt` partition to accommodate for their size.

The following table lists the amount of disk space allocated for the following partitions during a default cold-install for each operating environment (percentage used in each partition in parentheses):

Table 3-1 File Partition Disk Space Allocation by Operating Environment[1]

Partition	FOE	EOE	MCOE	TCOE	MTOE
/	208 MB (78% used)	208 MB (81% used)	208 MB (81% used)	208 MB (77% used)	223 MB (83% used)
/stand	304 MB (21% used)	304 MB (21% used)	304 MB (21% used)	304 MB (21% used)	300 MB (23% used)
/var	4.5 GB (2% used)	4.5 GB (2% used)	4.5 GB (2% used)	4.5 GB (2% used)	1.5 GB (6% used)
/usr	2.6 GB (76% used)	2.7 GB (75% used)	2.7 GB (75% used)	3.7 GB (61% used)	3.7 GB (62% used)
/tmp	208 MB (4% used)	208 MB (4% used)	208 MB (4% used)	208 MB (4% used)	200 MB (4% used)
/opt	3.6 GB (52% used)	3.7 GB (53% used)	3.7 GB (53% used)	4.5 GB (58% used)	2.7 GB (63% used)
/home	32 MB (26% used)	32 MB (26% used)	32 MB (26% used)	32 MB (26% used)	20 MB (41% used)
Total[2,3]	**11.6 GB (37% used)**	**11.7 GB (37% used)**	**11.8 GB (36% used)**	**13.7 GB (38% used)**	**8.7 GB (50% used)**

1. The results are from using the *bdf* (1M)command; your results may vary if you use the *du* (1) command.
2. Totals are not exact due to rounding
3. Totals do not include disk space required for the EFI Boot Partition, HP Service Partition, or /swap

Depending on how much disk space you have available, you can change the size of the partitions to meet your system's needs. For more information about modifying your file system, see *Managing Systems and Workgroups: A Guide for HP-UX System Administrators*.

Update Disk Space Requirements

To ensure a successful update to HP-UX 11i v2, you will need to make sure that you have at least as much disk space allocated to the file partitions listed in Table 3-1, *and* each partition (most importantly, `/usr`,`/opt` and `/var`) has at least 10-20% free space to allow for any growth. Additionally, make sure that you have at least 1 GB allocated for `/swap`.

How to Plan Your Disk Space Needs

This section provides hints and information to help you determine your disk needs for HP-UX 11i v2. If you need more disk space, be sure to order the equipment and plan on installing it after backing up your current system.

Planning Hints

- Record the hardware path to the DVD drive.
- Develop a clear configuration plan, including:
  - File system sizes
  - Swap space size
  - Dump device
  - Disk and file-system parameters
  - Mirroring information
- If installing application programs other than those supplied within an HP-UX 11i v2 Operating Environment (OE), consider the vendor's size recommendations.
- When planning disk space, refer to these books:
  - *Managing Systems and Workgroups: A Guide for HP-UX System Administrators* — This manual is available on the Instant Information DVD and the web:

    `http://docs.hp.com`
  - *Disk and File Management Tasks on HP-UX* — Prentice-Hall Hewlett-Packard Professional Books, 1997.

Supported Servers and Workstations

HP-UX 11i v2 (B.11.23) supports only a 64-bit version of the HP-UX kernel. The HP-UX 11i v2 release fully supports the following servers and workstations:

- HP Integrity rx2600 (HP server)
- HP Integrity rx4640 (HP server)
- HP Integrity rx5670 (HP server)
- HP Integrity rx7620 (HP server)
- HP Integrity rx8620 (HP server)
- HP Integrity Superdome (HP servers: 16-, 32-, and 64-way))
- zx2000 (HP workstation)
- zx6000 (HP workstation)

NOTE For additional information, including specifications, warranty, and support go to the web:

`http://www.hp.com/products1/itanium`

Unsupported Servers and Workstations

HP-UX 11i v2 is not supported on the following platforms:

- PA-RISC platforms
- i2000 (HP workstation)
- HP Integrity rx4610 (HP server)

HP-UX 11i v2 Network, Mass Storage, and SCSI Drivers

The *HP-UX 11i Version 2 Release Notes* provides a complete list of supported network and mass storage drivers, and SCSI devices. See Chapter 2, "Workstation/Server Specific Information" for drivers and devices, and details regarding the impact, compatibility, and documentation for the products.

Additionally, the following sections list the network and mass storage drivers, and supported I/O adapters included with HP-UX 11i v2:

- "HP-UX 11i v2 Always-Installed Network & Mass Storage Drivers" on page 174
- "HP-UX 11i v2 Selectable Network Drivers" on page 178

Keeping Up with Firmware Recommendations

Pre-Migration Task for Everyone

Firmware changes frequently. It is important to make sure your system has the latest firmware installed in order, for example, to support the latest versions of I/O adapters, mass storage devices, and devices used when you install from media or a network depot.

NOTE

To make sure your system has the latest firmware, check this web site:

`http://www.hp.com/support/itaniumservers`

Table 3-2 Firmware for the First Release of HP-UX 11i v2 Systems

System	Baseboard Management Controller (BMC)	Manage-ment Processor (MP)	Manufac-turing Firmware (MFW)	Platform Dependent Hardware Controller (PDHC)	System Firmware
HP Integrity rx2600 (HP server)	1.50	MP E.02.10 or E.02.23			2.21
HP Integrity rx4640 (HP server)	2.18	E.02.23			1.10
HP Integrity rx5670 (HP server)	1.30	E.02.23			3.20
HP Integrity rx7620 (HP server)		Core I/O MP: 5.10		3.6	0.18.0
HP Integrity rx8620 (HP server)		Core I/O MP: 5.10		3.6	0.18.0

Table 3-2 Firmware for the First Release of HP-UX 11i v2 Systems

System	Baseboard Management Controller (BMC)	Manage-ment Processor (MP)	Manufac-turing Firmware (MFW)	Platform Dependent Hardware Controller (PDHC)	System Firmware
HP Integrity Superdome (HP servers: 16-, 32-, and 64-way)			14.12		1.12
zx2000 (HP workstation)	1.50				2.21
zx6000 (HP workstation)	1.50	MP E.02.10 or E.02.23			2.21

Identifying Model, OS/OE, and Software

Before you cold-install or update to HP-UX 11i v2, check the model and other information on the system. You can use this information in the “System Requirements” on page 53.

Identifying model

To determine the model number of your system, enter:

```
model
```

To verify that HP-UX 11i v2 is supported on your system see “Supported Servers and Workstations” on page 56.

From EFI you can identify the model by interrupting the autoboot process in the boot manager, entering the EFI shell, and using the `info sys` command:

```
Shell> info sys
```

The sample output should appear as follows:

```
SYSTEM INFORMATION
Product Name: server rx2600
Serial Number: sg20220034
UUID: FFFFFFFF-FFFF-FFFF-FFFF-FFFFFFFFFFFF
```

Identifying OS and OE

To identify the OS version that your system is currently running, enter:

```
uname -r
```

When a system has HP-UX 11i v2 installed, you can determine which revision (Release ID) is installed by entering the following command:

```
/usr/sbin/swlist -l bundle
```

The `HPUXBaseAux` bundle indicate the current installed revision level. The revision level is indicated both in the bundle version number and the description text.

To identify the Operating Environment currently installed on your system, use `swlist`. For example:

```
/usr/sbin/swlist
```

The output of this command includes a line which identifies the installed OE. For example, this HP-UX 11i v2 OE release generates this line:

```
HPUX11i-OE B.11.23 HP-UX 11i Operating Environment Component
```

Identifying installed software

To identify the software products on a system or media, use `swlist`. For example, to show revision and descriptive title of all software installed on a system, enter:

```
/usr/sbin/swlist
```

For example, to list all products and their versions on a DVD mounted at `/cdrom`, enter:

```
/usr/sbin/swlist -s /cdrom
```

To get table of contents and product details, enter:

```
/usr/sbin/swlist -dvl product -a readme @ /cdrom
```

The `swlist` command has many options to expand or narrow the listing to specific attributes; see the *swlist* (1M) manpage or the *Software Distributor Administrator Guide*, available on the Instant Information DVD and on this web site: **`http://docs.hp.com/hpux/os/11iv2`**

NOTE

The cold-install process will erase all software on the root volume before installing HP-UX 11i v2. If you wish to retain any existing software, be sure to back up that software before migrating, or use update.

The Next Steps

You have completed the pre-cold-install review and tasks:

- “Factory Ignited Systems” on page 52
- “System Requirements” on page 53
- “Supported Servers and Workstations” on page 56
- “HP-UX 11i v2 Network, Mass Storage, and SCSI Drivers” on page 57
- “Keeping Up with Firmware Recommendations” on page 58
- “Identifying Model, OS/OE, and Software” on page 60

Continue with the next chapter:

- Chapter 4, “Preparing to Migrate to HP-UX 11i v2,” on page 63

4 Preparing to Migrate to HP-UX 11i v2

This chapter details the preparation tasks required to cold-install or update to HP-UX 11i v2.

What You Will Find in This Chapter

- “Update Tasks” on page 64
- “Updating Your Ignite-UX Server” on page 65
- “Selecting Your HP-UX Console” on page 66
- “About Online Diagnostics” on page 70
- “Backing Up Your System” on page 72
- “Saving Configuration Files” on page 75
- “Locating Source Media and Codewords” on page 76
- “The Next Steps” on page 78

To complete the preparation in this chapter, we estimate you require 2 hours. Please note that your time may vary.

Update Tasks

Prior to updating to HP-UX 11i v2, you should perform these tasks:

- Recording Software Versions
- Rebuilding the Kernel
- Cleaning Out Your Log Files

Recording Software Versions

To identify what software still needs updating after the OS update, print a `swlist` listing of all products and bundles prior to the update. For example, enter:

```
/usr/sbin/swlist | lp
```

Then compare it with a similar `swlist` executed after the update.

Rebuilding the Kernel

Your update could fail if the HP-UX kernel build fails in the starting environment. To ensure that you have a reliable starting point, rebuild the kernel before you update:

1. As root, enter:

   ```
   /usr/sbin/mk_kernel
   ```

2. Fix any problems listed in the `mk_kernel` output.
3. Reboot your system to ensure that your new kernel boots.

Cleaning Out Your Log Files

To make it easier to check for problems encountered during an update, rename the log files before starting an update:

1. **`cd /var/adm/sw`**
2. As root, rename each log file. For example:

   ```
   mv swagent.log swagent_old.log
   ```

Updating Your Ignite-UX Server

The HP-UX 11i v2 DVD contains the complete Ignite-UX product. When you cold-install HP-UX 11i v2 from the media, a subset of Ignite-UX is used to perform the installation on a single system.

If you plan to update an existing Ignite-UX server to install HP-UX 11i v2 on more than one system in your network, then you should *update your Ignite-UX server first*.

Updating your Ignite-UX server and using it to update other systems will ensure that you have the `make_net_recovery` and `make_tape_rcovery` commands to backup and recover your systems (see the *make_net_recovery* (1M) and *make_tape_recovery* (1M) manpages for information). You will also be assured of keeping consistent kernel configuration with specific drivers, daemons, and kernel tunables on all systems.

The latest Ignite-UX software and documentation can also be downloaded from HP via this web site:

`http://software.hp.com/products/IUX`

Selecting Your HP-UX Console

HP-UX requires that you select the correct console via a firmware selection menu. If you have ordered a machine with HP-UX pre-installed, your console selections will be correctly chosen for you. If you are already on the system console, then you can skip this section.

However, if you are cold-installing HP-UX, or change your system configuration, you may need to select the correct console. Skipping this step can result in HP-UX using an unexpected device as a console, and can therefore appear as a system hang.

IMPORTANT Do not select more than one console device. HP-UX 11i v2 only recognizes one device at a time. Choosing more than one device may result in the appearance of system hang.

Step 1. Decide what console you want to use.

Depending on your system configuration, HP-UX can use one of several possible devices as your system console. The possibilities are:

- System Serial Port
- Management Processor (MP) Serial Port (if present)
- VGA device (if present)

Step 2. Using the EFI menus, select the appropriate console device and deselect others:

1. Choose the “Boot option maintenance menu” choice from the main Boot Manager Menu:

```
EFI Boot Manager ver 1.10 [14.57]  Firmware ver 1.20 [4225]

Please select a boot option

   HP-UX Primary Boot: 0/2/2/0.0.0.0
   EFI Shell [Built-in]
   Boot option maintenance menu
   Security/Password Menu
```

2. Choose “Select Active Console Output Devices”:

```
EFI Boot Maintenance Manager ver 1.10 [14.57]

Main Menu. Select an Operation

   Boot from a File
   Add a Boot Option
   Delete Boot Option(s)
   Change Boot Order
   Manage BootNext setting
   Set Auto Boot TimeOut
   Select Active Console Output Devices
   Select Active Console Input Devices
   Select Active Standard Error Devices
   Cold Reset
   Exit

SystemGuid-->[FFFFFFFF-FFFF-FFFF-FFFF-FFFFFFFFFFFF]

SerialNumber-->[(null)]
```

3. Choose the correct output device and deselect others. On the HP Integrity rx2600, HP Integrity rx5670, and zx6000 systems, the “Select Active Console Output Devices” menu will look like this (see “Interface Differences between Itanium-based Systems” on page 68 for details about choosing the appropriate device):

```
EFI Boot Maintenance Manager ver 1.10 [14.57]

Select the Console Output Device(s)

   Acpi(PNP0501,0)/Uart(9600 N81)/VenMsg(PcAnsi)
   Acpi(PNP0501,0)/Uart(9600 N81)/VenMsg(Vt100)
   Acpi(PNP0501,0)/Uart(9600 N81)/VenMsg(Vt100+)
   Acpi(PNP0501,0)/Uart(9600 N81)/VenMsg(VtUtf8)
   Acpi(HWP0002,700)/Pci(1|1)/Uart(9600 N81)/VenMsg(PcAnsi)
   Acpi(HWP0002,700)/Pci(1|1)/Uart(9600 N81)/VenMsg(Vt100)
   Acpi(HWP0002,700)/Pci(1|1)/Uart(9600 N81)/VenMsg(Vt100+)
   Acpi(HWP0002,700)/Pci(1|1)/Uart(9600 N81)/VenMsg(VtUtf8)
*  Acpi(HWP0002,700)/Pci(2|0)
   Acpi(HWP0003,400)/Pci(0|0)
   Save Settings to NVRAM
   Exit
```

Interface Differences between Itanium-based Systems

Each Itanium-based system has a similar interface with minor differences. You can navigate these menus with the arrow keys or "v" and "^" keys to move around, and use the enter or space key to select and deselect devices. Selected devices have an asterisk ("*") next to them. After making your changes to this menu, choose **`Save Settings to NVRAM`** and then **`Exit`**.

VGA Consoles

Any device in the output device menu that has a **`Pci`** section in its path, but does not have a **`Uart`** section will be a VGA device. If you require a VGA console, choose this device, and unmark all others. In the example above, a VGA device is selected as the console.

Other Console Types

Any device in the output device menu that has a **`Uart`** section, but no **`Pci`** section is one of the system serial ports; devices containing *both* a **`Uart`** and **`Pci`** section are MP serial ports. Notice that there are actually four almost identical system serial ports in the example above. The first four entries are identical except for their **`VenMsg`** section. This means that each entry is actually the same device, with different protocols for accessing the device. If the first entry is chosen, an Ansi capable terminal device should be used to talk to the serial port. If the second entry is chosen, a Vt100 capable terminal device should be used, and so on.

If you choose either a system or MP serial port, HP recommends you choose a Vt100+ capable terminal device.

Selecting a Console on the HP Integrity rx2600, rx5670, and zx6000 Systems

On the HP Integrity rx2600, HP Integrity rx5670, and zx6000 systems, an entry in the output device menu that has a **`Uart`** section and a **`Pci`** section will be the serial port on a Management Processor (MP). To use the MP as your console device, select one of the MP serial device entries, and deselect everything else.

Step 1. Choose **`Select Active Console Input Devices`**.

Step 2. Choose the correct input device and deselect others.

Follow all the substeps in Step 2 of "Selecting Your HP-UX Console" on page 66 to correctly select your console input device. For input devices, a device that has a **`Pci`** section in its path, but does not have a **`Uart`** section will be a USB keyboard device.

Step 3. Choose **`Select Active Standard Error Devices`**.

Step 4. Choose the correct standard error device and deselect others.

Follow all the substeps in Step 2 of "Selecting Your HP-UX Console" on page 66 to correctly select your standard error device. Output on this device will be important firmware messages reporting errors.

Step 5. Reset your system

A system reset is required for your console selections to take effect

Additional Notes on Console Selection

HP-UX makes decisions based upon the EFI Boot Maintenance Manager menu's **`Select Active Console`** sections to determine where to send its output. If the incorrect console devices are chosen, HP-UX may either fail to boot, or will boot with output directed to the wrong location. Therefore, any time new potential console devices are added to a system, or anytime NVRAM on a system is cleared, console selections should be reviewed to ensure that they are correct.

More information on the EFI Paths used for console selection can be found in Intel's Extensible Firmware Interface documents available from their web site.

About Online Diagnostics

HP-UX 11i v2 automatically installs diagnostics on all systems to provide required hardware support. These tools, contained in the `OnlineDiag` bundle, give you a complete solution to verify, troubleshoot, and monitor Itanium-based system hardware, including CPUs, memory, interface cards, mass storage and other devices.

CAUTION

Uninstalling the OnlineDiag bundle prevents products with dependencies on the diagnostics from functioning correctly.

Not installing `OnlineDiag` removes protections against hardware failures that diagnostics provide. Without the tools, it is much harder to troubleshoot and fix problems if a hardware failure occurs.

To ensure the reliability of your computer system, we highly recommend installing the `OnlineDiag` bundle with HP-UX 11i v2 (it will be installed by default with any HP-UX 11i Operating Environment).

The tools in `OnlineDiag`:

- Protect you against some hardware failures (for example, some memory problems)
- Notify you of hardware events that may indicate impending failure
- Maintain logs that can give you critical help in determining the cause of failures
- Let you troubleshoot system problems with the system online

For most computer systems, no special configuration of the diagnostics is necessary.

For complete information, see the diagnostics web site:

`http://docs.hp.com/hpux/diag`

About Offline Diagnostics

Offline Diagnostics (ODE) are on the *HP Itanium-Processor Family Offline Diagnostics and Utilities* CD. The CD is delivered with the hardware and is non-OS dependent (it is not delivered with the HP-UX 11i v2 media kit).

HP highly recommends that you get the latest CD and update the Offline Diagnostics for improved functionality. To order the *HP Itanium-Processor Family Offline Diagnostics and Utilities* CD, go to the following web sites:

Software Depot: **`www.software.hp.com`**

Biz Support: **`www.hp.com/support/Itaniumservers`**

NOTE For more information on ODE, go to the following web site:

`http://www.docs.hp.com/hpux/onlinedocs/diag/ode/ode_over.htm`

Backing Up Your System

In addition to your normal, periodic system backup procedures, you should create a network backup of your root volume group (see Chapter 5, “Cold-Installing HP-UX 11i v2,” on page 79). Do this first before performing a cold-install, and again after the cold-install. If a problem occurs, it’s a very simple procedure to restore the system to its original state.

This section offers several alternatives for performing system backups: `fbackup and frecover`, and `make_net_recovery and make_tape_recovery`.

Using fbackup and frecover

Many administrators use the basic `fbackup` command to back up the entire system to tape. You do not need to unmount any imported file systems; `fbackup` does not cross NFS boundaries unless specified.

Using the normal tape location to do a full backup, insert a new tape and enter:

```
fbackup -f/dev/rmt/0m -i -v
```

Later, if you wish to return the system to its previous state, use the `frecover` command. See the *fbackup* (1M) manpage for examples.

Ignite-UX recovery commands

For recovering a system, a better alternative to using `fbackup` and `frecover` is to use the `make_net_recovery` or `make_tape_recovery` commands available with Ignite-UX, which offer more flexibility than `fbackup` and `frecover`, including the ability to recover non-bootable systems.

The Ignite-UX server software for HP-UX 11i v2 is provided on the *HP-UX 11i v2 DVD*, and can be cold-installed or updated along with HP-UX 11i v2 to create or update a new server. See “Updating Your Ignite-UX Server” on page 65 for details.

Using make_net_recovery

The Ignite-UX server has the `make_net_recovery` command to create a system recovery archive on another system on the network. The archive created by `make_net_recovery` is specific to the system it was created for and its identity includes hostname, IP_address, networking information, and so on. In the event of a root disk failure, you use the Ignite-UX server to restore the system by installing the recovery archive.

The contents of the system recovery archive always includes all files and directories which are essential to bringing up a functional system. This "essential" list is pre-defined by `make_net_recovery`. You can run `make_net_recovery` in its interactive mode to review the directories and files which make up the "essential list," and also add or remove other data from the archive on a disk/volume group, file, or directory basis.

For more information on using `make_net_recovery`, see the *make_net_recovery* (1M) manpage or the *Ignite-UX Administration Guide*.

Using `make_tape_recovery`

The Ignite-UX server's `make_tape_recovery` command creates a bootable recovery tape for an LVM or whole disk file system while it is up and running. When a system has a logical volume layout, the recovery tape will only include data from the root volume group, plus data from any non-root volume group containing the /usr directory.

You can run `make_tape_recovery` either on the Ignite-UX server or locally on the system from which you are trying to make a recovery tape.

To create the bootable recovery tape, enter:

```
/opt/ignite/bin/make_tape_recovery -Av
```

where: `v` is for verbose mode and `A` specifies the entire root disk or volume group. Also, more than one volume group can be specified with the `-x` option.

If a tape drive other than the default (`/dev/rmt/0m`) will be used, modify the command to point to the device you want to use, for example a tape drive at `/dev/rmt/3mn`:

```
/opt/ignite/bin/make_tape_recovery -Av -d /dev/rmt/3mn
```

To recover a failed system disk or volume group after a recovery tape has been made, simply load the recovery tape, boot the system, interrupting the boot sequence to redirect to the tape drive. Allow the install process to complete. Do not intervene. The system will reboot and, because map files for all associated volume groups have been saved on the tape, any other existing volume groups are imported and mounted automatically. Data which is not in the root volume group must be backed up and recovered using normal backup utilities.

For more information on using `make_tape_recovery`, see the *make_tape_recovery* (1M) manpage on an Ignite-UX server or the *Ignite-UX Administration Guide*. The guide is available on the HP-UX 11i v2 Instant Information CD and at this web site:

`http://docs.hp.com/`

Saving Configuration Files

If you are planning to cold-install HP-UX 11i v2 on a system that already has HP-UX installed, be sure to save the files that you will want to re-install.

These include a number of configuration files in `/etc`, the contents of `/usr/local`, any local home directories (that is, those you do not import from another system), and any configuration files located in the `/etc/opt` directories for installed software.

If multiple users are preparing for the cold-install, you might consider creating a directory (such as `/backup`) on another system. *Do not create this directory on your root disk.* Mount it with `sam`. Then create a subdirectory for each system or user (for example, `/backup/your_sys`).

As root, copy the files. For example:

Step 1. Copy all config files from `/etc` on a system named `system1` to system `system2`. On `system2`, enter:

```
mkdir /backup/system1/etc
rcp -p your_name@system1:/etc/* /backup/system1/etc/.
```

Step 2. Copy your local home directory to the backup system:

```
mkdir /backup/system1/home
rcp -pr your_name@system1:/home/ /backup/system1/home/
```

Locating Source Media and Codewords

Now that you have backed up your system and important data files, and you have decided how to cold-install or update to HP-UX 11i v2, you need to locate the source media needed for the migration:

- **If you are cold-installing or updating one system at a time** — cold-install or update directly from the DVDs in the HP-UX 11i v2 media kit:
  - — **HP-UX 11i v2 DVD** — Boot and install a new system.
  - — **HP-UX Application DVDs** — Install applications not installed with the OE or install a newer version of an OE application. Some applications installed with an HP-UX 11i v2 OE may be older versions than those available on the HP-UX Applications DVDs supplied in the media kit. Products available on Application DVDs are listed in the `TABLE_OF_CONTENTS` file on each DVD.
- **If you plan to cold-install on many systems in your enterprise** — We recommend using an Ignite-UX server to create a "golden image" from which to cold-install. This install image can contain the OS and OE, other applications, and any needed patches. Once the archive is in place, either on the Ignite-UX server or on another system, cold-install on each client system is a single-pass operation; you will only need to reboot each client once.

  For details on installing an Ignite-UX server, see the *Ignite-UX Administration Guide,* supplied on the Instant Information DVD and on this web site:

  `http://docs.hp.com/hpux/os/11iv2`

Locating Codewords

You can obtain a codeword for a purchased product by calling one of the following numbers.

Table 4-1 HP Licensing Services

Location	Telephone	Email
Asia	0120.42.1231 (Inside Japan) 0426.48.9310 (Inside Japan) +81.426.48.9312 (Outside Japan)	sw_codeword@hp.com
Europe	+33 (0)4.76.14.15.29	codeword_europe@hp.com
North America	(800) 538-1733	hplicense@mayfield.hp.com

NOTE For more information on HP Licensing Services and codeword redemption, go to the web:

`http://licensing.hp.com`

The Codeword Request forms also list the telephone numbers and web site for codeword redemption.

The Next Steps

You have completed the following review:

- “Updating Your Ignite-UX Server” on page 65
- “Selecting Your HP-UX Console” on page 66
- “About Online Diagnostics” on page 70
- “Backing Up Your System” on page 72
- “Saving Configuration Files” on page 75
- “Locating Source Media and Codewords” on page 76

You are now ready to cold-install or update to HP-UX 11i v2

- **To cold-install:** see Chapter 5, “Cold-Installing HP-UX 11i v2,” on page 79
- **To update:** see Chapter 6, “Updating to HP-UX 11i v2,” on page 93

5 Cold-Installing HP-UX 11i v2

This chapter describes cold-installing HP-UX 11i v2.

What You Will Find in This Chapter

- "Before You Begin" on page 80
- "Reviewing the Cold-Install Process" on page 81
- "Cold-installing HP-UX 11i v2" on page 83
- "Retrieving Information after Cold-installing" on page 90
- "The Next Step" on page 92

To complete the steps in this chapter, we estimate you require 2-3 hours, depending upon the system, and if you are installing the OS or an OE. Please note that your time may vary.

CAUTION The cold-install process overwrites everything on the root (/) disk. Make sure you completed backups in "Backing Up Your System" on page 72.

Before You Begin

Before you cold-install HP-UX 11i v2, be sure you have done the following:

- You are installing from a supported migration path, see “Supported Cold-Install Paths to HP-UX 11i v2” on page 33.
- You understand all of the considerations provided in Chapter 2, and particularly:
  - “Cold-Install Considerations” on page 38.
- You are sure your system meets the system requirements to update and operate HP-UX 11i v2. For more details see Chapter 3, “Installing and Updating System Requirements,” on page 51.
- You have completed the preparation tasks required to update your system. For more information see Chapter 4, “Preparing to Migrate to HP-UX 11i v2,” on page 63.
- See Appendix A, “Data Collection Tables,” on page 141 for networking and other data that you need to collect.

Reviewing the Cold-Install Process

This section describes cold-installing from the HP-UX 11i v2 DVDs, including the operating system, a selected operating environment (OE) bundle, network drivers, CDE language bundle, and diagnostics.

The overall process is shown in Figure 5-1 on page 82, along with alternate methods of cold-installing HP-UX 11i v2:

Alternate install methods

- Installing from software depots — Use Software Distributor commands to create depots containing OS, OE, and other software bundles, then install from the depot using Ignite-UX. For help with this method, see the *swinstall* (1M) manpage, *Software Distributor Administration Guide,* and *Ignite-UX Administration Guide*.
- Installing from golden images — If you need to install the same OS/OE and applications on many systems in your network, use an Ignite-UX server as explained in the *Ignite-UX Administration Guide*. With Ignite-UX, you can create a single install image (golden image) containing OS/OE bundles, application bundles, and patch bundles, then install the image on multiple systems in your environment.
- For customers ordering new systems with the “Instant Ignition” option (also known as “factory ignited”), the cold-installation process described here has already been performed. Skip this chapter and proceed to Chapter 7, “Verifying System Install or Update,” on page 117.

Mission Critical Support

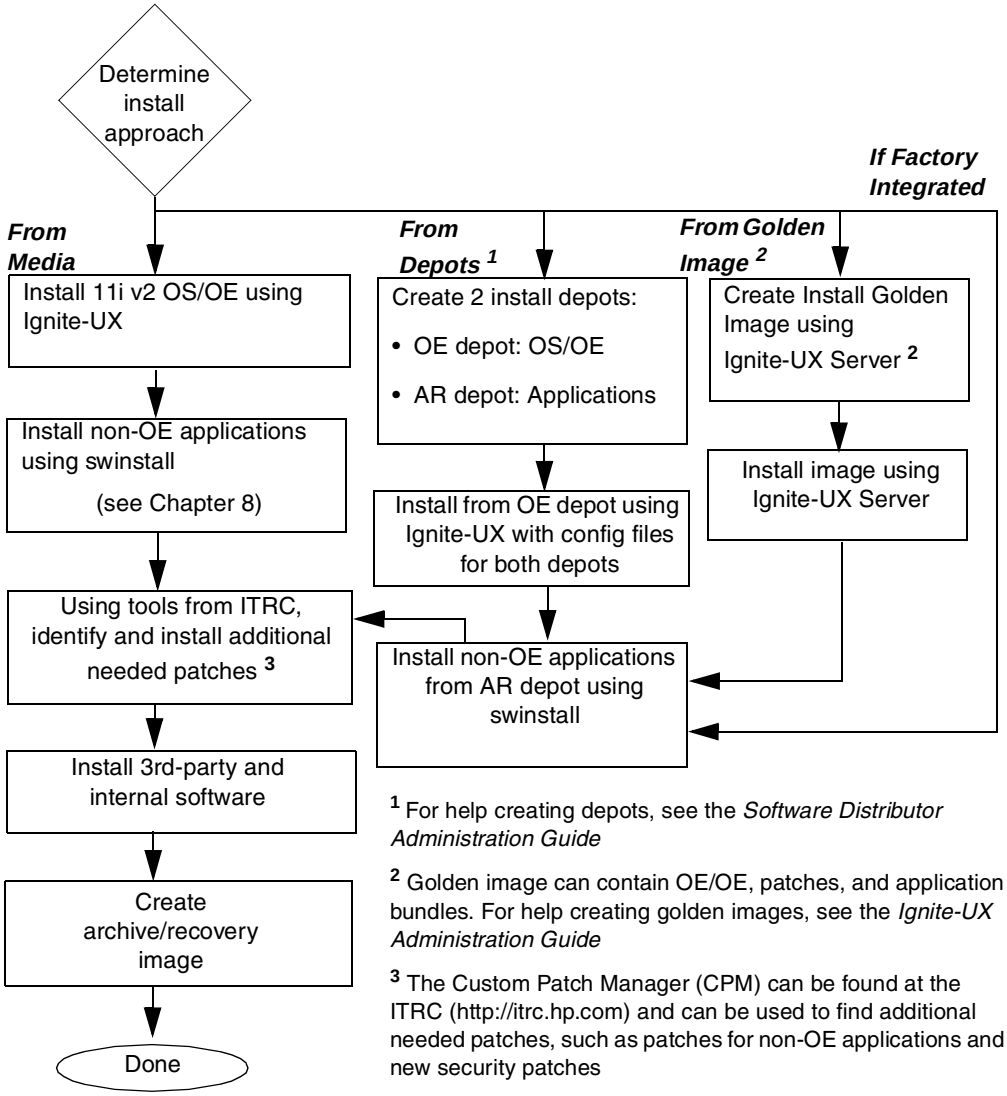
If your system is on HP Mission Critical Support, discuss the proper method of installing and patching the OE with your HP Customer Engineer.

Required media

Have these DVDs ready from the HP-UX 11i v2 media kit:

- **HP-UX 11i v2 DVD**
- **HP-UX 11i v2 Applications DVD**

Figure 5-1 Cold-installing HP-UX 11i v2



[1] For help creating depots, see the *Software Distributor Administration Guide*

[2] Golden image can contain OE/OE, patches, and application bundles. For help creating golden images, see the *Ignite-UX Administration Guide*

[3] The Custom Patch Manager (CPM) can be found at the ITRC (http://itrc.hp.com) and can be used to find additional needed patches, such as patches for non-OE applications and new security patches

Cold-installing HP-UX 11i v2

To cold-install the operating system, use the following steps. Please note that cold-installing overwrites everything on the target disk. You should review the Appendix B, “Known Problems and Troubleshooting,” on page 145 to see if any installation issues apply to your system.

Step 1. Make sure any external devices connected to the target system are turned ON and operational.

Step 2. Insert the HP-UX 11i v2 DVD into the drive.

Step 3. Turn the system ON, reboot, or cycle power. The system should boot automatically from the DVD.

- If the system boots automatically, go to step 4.
- If the system does not boot automatically, it goes to the boot menu. It is a timed menu; press any key to stop the timer. Then, you can run the install manually from the EFI shell using the following steps:

a. From the boot menu, select `EFI Shell (Built In)`.

b. The list of devices displays automatically, and the install process selects the device for you.

c. If the device is not automatically selected, select the device name for the CDROM and then execute `install`. For example, from the EFI shell prompt, you may see something similar to the following:

```
Shell> fs1:

fs1:\> install
```

If you do not see the CDROM device, use the `map` command to list all device names from the EFI shell prompt.

NOTE Your DVD device may not always be `fs1`. Make sure you verify the ID appropriate with your DVD device.

Step 4. Once the kernel has booted, it scans the system for I/O devices.

Continuing the Install with Ignite-UX Program

The system now displays the Ignite-UX welcome screen for the HP-UX installation process. If you have used Ignite-UX on PA systems, the remaining procedures will be familiar to you.

Step 1. Take a moment to read how to navigate and select choices on this terminal interface:

- Use the **Tab** key to navigate between fields and the arrow keys to navigate within fields.
- Use the **Return/Enter** key to select an item. Pressing **Return/Enter** or the spacebar opens a menu list.
- For Help, use **Ctrl-K** for navigation key help and **Ctrl-F** (or **F1**) for context-sensitive help.
- You can enter the underlined letter of an item (such as `I` for `install HP-UX`) to navigate more quickly.

Step 2. If the install detects that you have a keyboard, pick the number of the language you want to use, for example, 26. Confirm your choice.

```
*****************************************************

A USB interface has been detected on this system.
In order to use a keyboard on this interface, you must specify
a language mapping which will be used by X windows and
the Internal Terminal Emulator (ITE).
The characters “1234567890” will appear as “!@#$^&*()”
on keyboards that use the shift key to type a number.
Your choice will be stored in the file /etc/kbdlang

1) USB_PS2_DIN_Belgian          2)USB_PS2_DIN_Belgian_Euro
3) USB_PS2_DIN_Danish           4)USB_PS2_DIN_Danish_Euro
5) USB_PS2_DIN_Euro_Spanish     6)USB_PS2_DIN_Euro_Spanish_Euro
7) USB_PS2_DIN_French           8)USB_PS2_DIN_French_Euro
9) USB_PS2_DIN_German           10)USB_PS2_DIN_German_Euro
11) USB_PS2_DIN_Italian         12)USB_PS2_DIN_Italian_Euro
13) USB_PS2_DIN_JIS_109         14)USB_PS2_DIN_Korean
15) USB_PS2_DIN_Norwegian       16)USB_PS2_DIN_Norwegian_Euro
17) USB_PS2_DIN_S_Chinese       18)USB_PS2_DIN_Swedish
19) USB_PS2_DIN_Swedish_Euro    20)USB_PS2_DIN_Swiss_French2_Euro
21) USB_PS2_DIN_Swiss_German2   22)USB_PS2_DIN_Swiss_German2_Euro
23) USB_PS2_DIN_T_Chinese       24)USB_PS2_DIN_UK_English
25) USB_PS2_DIN_UK_English_Euro 26)USB_PS2_DIN_US_English
27) USB_PS2_DIN_US_English_Euro

Enter the number of the language you want: 26
```

```
You have selected the keyboard language USB_PS2_DIN_US_English.
Please confirm your choice by pressing RETURN or enter a new
number:
```

Step 3. Select **Install HP-UX** to begin interacting with the Ignite-UX (cold-install) program.

Step 4. From the **User Interface and Media Options** screen, choose the degree of customizing needed to configure the installation. The default setting under **Source Location Options** (Media only installation) is correct for installing from a DVD.

Three choices are shown in **User Interface Options**:

- **Guided Installation** provides tutorial information and limited choices for inexperienced Ignite-UX users.
- **Advanced Installation** enables you to customize your system on tabbed screens. Use this mode to change VxVM settings. You may also find it convenient to set system parameters, network services, file-system characteristics, and other configuration details.
- **No User Interface** Use all the defaults and GO.

Ignite-UX permits you to exit from Guided Installation and restart the configuration using Advanced Installation later by either selecting the Cancel button or pressing C. Mark your choices and select **OK**.

Step 5. The remaining steps take you through the **Guided Installation**. For help, consult the Help screens. For more help on using **Advanced Installation**, see the *Ignite-UX Administration Guide*.

Deselecting OE Software Bundles

If you use the Guided or Advanced Installations, then you can deselect the software bundles that are default installed. For a list of default-installed software bundles, see “HP-UX 11i v2 Default-Installed Software Bundles” on page 175.

If you choose the No User Interface option, then you cannot deselect the default-installed software bundles.

Step 1. In the Guided or Advanced Installation screens, go to the Software tab.

Step 2. Use the arrow keys to select a bundle and the spacebar to change the option.

IMPORTANT Review the *HP-UX 11i Version 2 Release Notes* to ensure that any bundle you deselect does not have a dependency. For example, you may deselect a software bundle that is necessary for another program to work correctly.

Continuing with Guided Installation

Step 1. You are now at the first step of the `Install HP-UX Wizard`: Select an overall system configuration. Accept the default option: `HP-UX B.11.23 Default.`

Step 2. Select a system environment. In this step you will choose the type of Operating Environment that will be installed on your system. Press **Return/Enter** to view the choices.

For Technical Computing OE media, the choices are:

```
x Environments: [HP-UX 11i TCOE-64bit   ->] (HP-UX B.11.23) x
x                HP-UX 11i MTOE-64bit                       x
x                HP-UX 11i Base OS-64bit                     x
```

For 11i v2 Foundation OE media, the choices are:

```
x Environments: [HP-UX 11i OE-64bit     ->] (HP-UX B.11.23) x
x                HP-UX 11i Base OS-64bit                    x
```

For Minimum Technical media, the choices are:

```
x Environments: [HP-UX 11i MTOE-64bit   ->] (HP-UX B.11.23) x
x                HP-UX 11i Base OS-64bit                    x
```

Step 3. Select a root disk. In this step you will choose the disk that will house your root filesystem. If you are unsure of what to choose, keep the default selection which has been calculated by the install program. Press **Return/Enter** to view the choices.

Step 4. Specify the amount of root swap space. Some initial calculations have been performed by the install program, and a recommended value has been set for you. You can either accept this value or change it before continuing. Press **Return/Enter** to view the choices.

Step 5. Select file system type. The default value chosen by the install program is recommended. Press **Return/Enter** to view the choices.

```
x  Install HP-UX wizard: Select a file system type          x
x                                                           x
x Now that you have made your root swap selection, you      x
x need to choose which type of file system you would like   x
x to use. The current choice displayed in the selector is   x
x recommended. If you are unsure of what to choose, keep    x
x the default selection. You may then safely proceed to     x
x the next step.                                            x
x -----------------------------------------------------------x
x               x VERITAS Volume Manager (VxVM) with VxFS   x
x               x Whole disk with VxFS                      x
x  File System: [x Logical Volume Manager (LVM) with VxFS]  x
x-----------------------------------------------------------x
x                                                           x
x      [ < Back ]  [ Next > ]  [ Cancel ]  [ Help  ]        x
x                                                           x
x-----------------------------------------------------------x
```

NOTE If you select VxVM, the root disk can not be moved to another SCSI bus or address that results in a change in the hardware path to the device. If it is moved, you may not be able to boot safely from it. This is similar to the limitation present in LVM.

Step 6. Specify number of disks in the root group. In this step you will specify how many disks you want placed into the root disk volume group and whether or not you would like the disks to be striped. (The HP-UX Install Wizard describes these features in depth.)

You must enter Yes or No to “Use Striping”.

Step 7. Select language(s). Browse the available languages, marking the desired selections. During the first boot, you may have been asked this already.

Step 8. Select additional software. In this step you may select any additional software which you would like loaded onto your system. Browse the list, marking your selections, then continue to the next step.

For example, to secure your system at install-time with the `Sec30DMZ` configuration bundle (see “Install-time Security Considerations” on page 43):

a. Select **SecurityChoices**. The four security configuration bundles appear. By default, `Sec00Tools` is selected.

b. Select `Sec30DMZ` from the list.

c. Select **OK**.

Step 9. Pre-Install disk information, Step 1. There are two steps involved in the pre-install checks. The first is to identify which disks will be overwritten during the install process. If you see a disk in the list that you do not want included, back up to the root disk selection and choose another disk. Otherwise, continue on to the next step.

Step 10. Pre-Install check information, Step 2. The second step in the pre-install check is to review any errors, warnings, or notes. Warnings are simply informational. If there are any errors, they will need to be resolved before the installation can continue.

Step 11. System summary. At this point you have successfully defined your system. Use the **Show Summary** button to view a summary of how your system will be configured. If you see any problems, or wish to change any of your selections, feel free to back up to the appropriate step, and make the needed changes. Otherwise, select **Finish** (at the bottom of the tabs). You have the chance to **Cancel** at this time. If you cancel, you can start again.

Step 12. Next, the installation will begin with filesets being copied from the media to the hard disk. The system will automatically reboot during the installation process.

Step 13. Depending on how you set up your parameters, the system will either set basic network configurations automatically, or will call the `set_parms` command after it has rebooted to allow you to set the root password, date and time, time zone, IP address, and additional network parameters.

After `set_parms` is executed, then the “Welcome to HP-UX” screen will be displayed.

Step 14. In order to use a keyboard on this interface, you must specify a language mapping which will be used by X Windows and the Internal Terminal Emulator (ITE). Choose the appropriate language. For English, select number **26**.

Step 15. At this point, you will need to answer a few questions before you can use the system. The first is whether or not you plan to use the system on a network. If you completed the pre-install data collection tables in Appendix A, “Data Collection Tables,” on page 141, you have all the information you need for set_parms, so answer Y for yes.

Step 16. Enter the basic network information that you collected in Appendix A, “Data Collection Tables,” on page 141 on the screens that follow.

Step 17. Confirm your choices. Congratulations! You are now finished with the install procedure and will be given the opportunity to log in to the system as root.

Step 18. Log in to the system.

Step 19. After the cold-install, store the HP-UX DVDs in a safe place. You may need them to install drivers or other software later.

Retrieving Information after Cold-installing

After completing the cold-install, you can retrieve the information you had previously saved onto another system. Here are some tips:

Creating a new root home directory

Consider creating a root home directory that is not /. This keeps the user root dot files out of the / directory. Make sure it is on the root volume by calling it something like /homeroot. This is especially important if you are using LVM and /home is a separate volume.

Step 1. From the CDE login screen, select **Options** -> **Command Line Login** and login as root.

Step 2. Except on trusted systems, edit /etc/passwd to change the home directory from root to /homeroot and save it.

Step 3. Create the /homeroot directory:

```
mkdir /homeroot
```

Step 4. Move root's personal files (files beginning with .) to /homeroot:

```
mv /.[a-zA-Z]* /homeroot
```

Step 5. Exit and log in again as root.

Recovering files

Recover all the customized and personal files that you saved previously by merging them manually. For example, do not overwrite /etc/passwd with your old version. Instead, either paste in entries from your old files or *merge* the old information into the new files.

Restoring /home

If you had a local home directory, you can restore it as follows:

- For instance, if you copied it to, /backup/system1/home, enter these commands:

  ```
  cd /backup/system1/home
  find -depth | cpio -pdm /system1/home
  ```

- If you backed it up to tape with fbackup, enter:

  ```
  frecover -x -i /system1/home -v
  ```

Restoring other files

Carefully use the same techniques to restore other files and directories, such as `/usr, /local` and `/opt`. For help in importing entire volume groups, see either the *Managing Systems and Workgroups: A Guide for HP-UX System Administrators* or the *Managing Superdome Complexes*.

The commands above will not write over newer files, so your new operating system and any files you update are well protected.

The Next Step

You have completed the cold-install process:

- “Reviewing the Cold-Install Process” on page 81
- “Cold-installing HP-UX 11i v2” on page 83
- “Retrieving Information after Cold-installing” on page 90

Continue with chapter:

- Chapter 7, “Verifying System Install or Update,” on page 117

6 Updating to HP-UX 11i v2

This chapter describes updating your system to HP-UX 11i v2 using the `update-ux` command. To help you decide whether you should update or cold-install, see Chapter 2, “Choosing a Migration Path,” on page 31.

What You Will Find in This Chapter

- “Before You Begin” on page 94
- “Reviewing the Update Process” on page 95
- “Updating Tips” on page 97
- “Updating to HP-UX 11i v2” on page 99
- “Configuring OE Applications” on page 108
- “Creating an HP Service Partition” on page 109
- “The Next Step” on page 115

To complete the steps in this chapter, we estimate you require 3-4 hours, depending upon the system, and if you are updating the OS or an OE. If you need to create an HP Service Partition, you will need an additional 4-6 hours. Please note that your time may vary.

Before You Begin

Before you update to HP-UX 11i v2, be sure you have done the following:

- ✓ You are updating from a supported migration path, see “Supported Update Paths to HP-UX 11i v2” on page 34
- ✓ You understand all of the considerations provided in Chapter 2, and particularly:
  - — “Update Considerations” on page 40
- ✓ You are sure your system meets the system requirements to update and operate HP-UX 11i v2. For more details see Chapter 3, “Installing and Updating System Requirements,” on page 51
- ✓ You have completed the preparation tasks required to update your system. For more information see Chapter 4, “Preparing to Migrate to HP-UX 11i v2,” on page 63.

Reviewing the Update Process

This section describes updating to HP-UX 11i v2 using `update-ux` command and Software Distributor (SD) tools to selectively overwrite the operating system and application software from a media or network source depot.

The overall process is described in Figure 6-1 on page 96, along with alternate methods of updating to HP-UX 11i v2:

IMPORTANT

You *must install* the latest version of Update-UX prior to updating your system. Failure to do so may cause the update to fail.

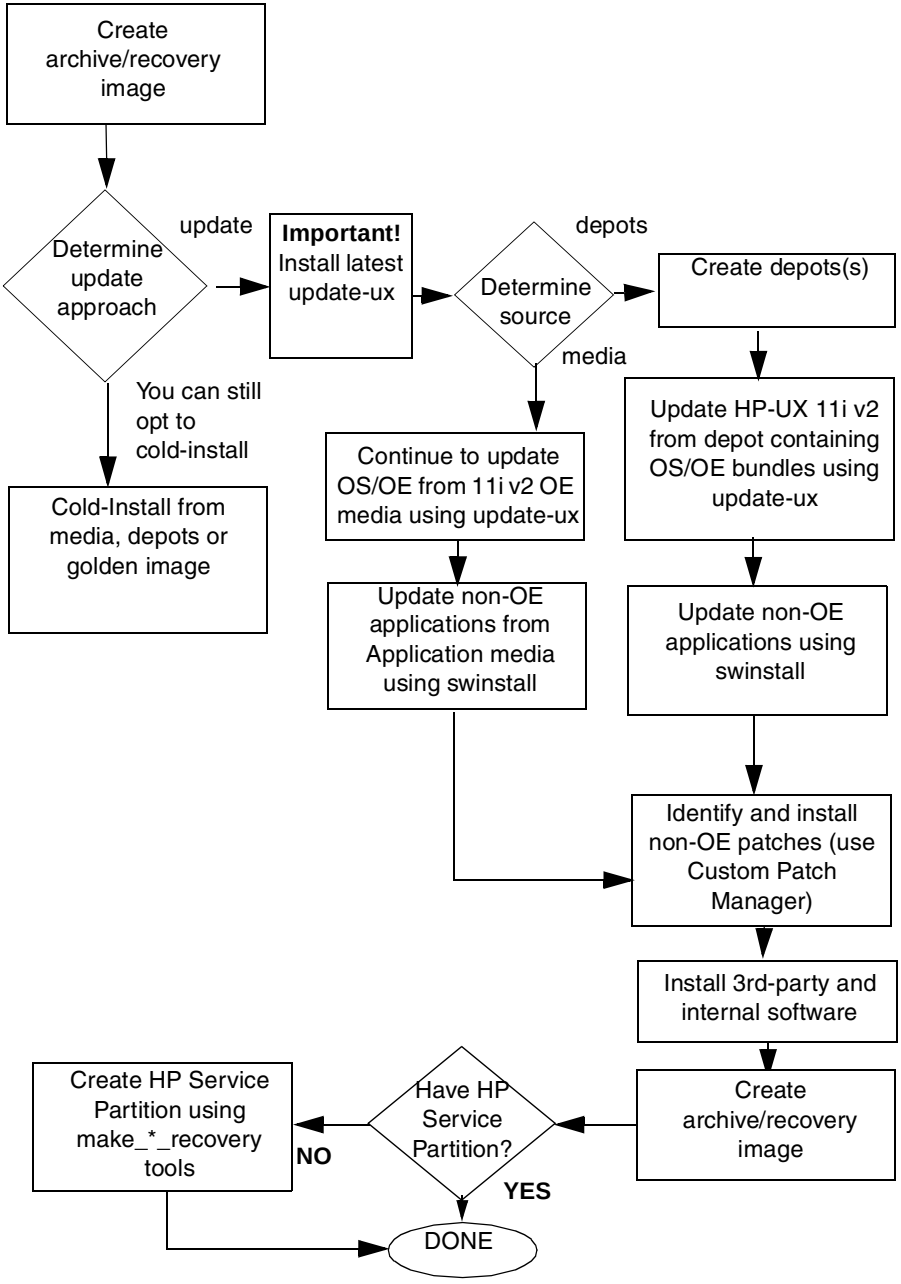
Alternate Update Methods

- Updating from network depots
- Updating from DVD media

Mission Critical Support

If your system is on HP Mission Critical Support, discuss the proper method to update and patch your operating environment with your HP Customer engineer.

Figure 6-1 Updating to HP-UX 11i v2



Updating Tips

During an update process, here are some tips and recommendations:

Monitoring the Update Process

If you wish to view the update process in detail, open another terminal window (drag it aside so you can also watch for any messages on the window running `update-ux`) and use the `tail` command to view `swinstall` messages being logged:

```
tail -f /var/adm/sw/swagent.log
```

You may also wish to log all messages directed to the console by using the `script` command. For example, to log all messages into a file named: `/tmp/updateOS`, enter:

```
script -a /tmp/updateOS
```

To halt the `script` log process, enter: **`exit`**

Running Other Commands

You can run other commands during an update, such as viewing files and `tail`. However, do not run other Software Distributor commands during an update; doing so may cause the commands to function improperly.

In Case of Trouble

If you encounter a problem during the update process, review Appendix B, “Known Problems and Troubleshooting,” on page 145 for possible solutions.

The `update-ux` command returns an error value when it is not successful:

```
1 - Error during execution; update aborted.

2 - Update aborted via user action (-n or keyboard press)
```

Messages are recorded in `/var/adm/sw/swagent.log`, `/var/adm/sw/swinstall.log`, and `/var/adm/sw/update-ux.log`.

When updating Ignite-UX, also look at its log in `/var/adm/sw/`.

All Software Does Not Get Updated

The `update-ux` command updates the HP-UX OS and any software specified in additional software bundles available on the source media or depot. When an OE is specified, some products in the OE will not get updated automatically if a version of the product not previously installed with an OE already exists on the system.

You will have to update or re-install those products after updating HP-UX 11i v2. For more information about how to update these additional software bundles, please see “Updating Selectable Software” on page 106.

Updating to HP-UX 11i v2

After determining if your system meets the requirements for updating to HP-UX 11i v2 and preparing your system, you are ready to update your system. Updating your system using `update-ux` includes the following steps:

- "Optional Step: Creating a Network Depot" on page 99: Shows you how to create a network depot to update other systems on the network. If you are not creating a network depot, you can ignore this procedure.
- "Step 1: Installing the update-ux Command (Required Task)" on page 100: Shows you how to install the `update-ux` command on your system.
- "Step 2: Using update-ux to Update to HP-UX 11i v2" on page 101: Shows you how to use `update-ux` to update your system. Several examples are provided to assist you with some of the most common scenarios for using `update-ux`.

Optional Step: Creating a Network Depot

NOTE

This optional step pertains to creating a network depot to be used to update other systems on the network.

If you are attempting to update your system from a network depot, start with "Step 1: Installing the update-ux Command (Required Task)" on page 100.

As root, follow this procedure to create a network depot from the HP-UX 11i v2 DVD onto a depot server or other system running HP-UX 11i v2 in your network:

Step 1. Verify that you have at least 2,000 MB (2 GB) of free space to create the network depot on another system in your network. If this space is not available, use `sam` to either create a new volume group or extend an existing volume group. For help, see either SAM help or the *Managing Systems and Workgroups* manual.

Step 2. Log in as root and mount the logical volume on a new directory named `/update`. This directory will hold your network depot.

Step 3. Insert the HP-UX 11i v2 DVD and wait for the drive's busy light to stop blinking.

Step 4. Find the DVD-ROM device file name:

```
ioscan -f -C disk | more
```

`/dev/dsk/c1t2d0` is a typical device name.

Step 5. Create the directory under root(`/`):

```
mkdir /dvdrom
```

Step 6. Mount the DVD onto the new directory as a file system. For example:

```
mount /dev/dsk/c1t2d0 /dvdrom
```

Step 7. Copy all products on the mounted DVD to the target depot, for example `/update/update-depot`:

```
swcopy -s /dvdrom \* @ /update/update-depot
```

Step 8. Unmount the DVD from its directory

```
umount /dvdrom
```

The network depot is now ready to update your system to HP-UX 11i v2. Continue with Step 1: Installing the update-ux Command (Required Task)

Step 1: Installing the `update-ux` Command (Required Task)

IMPORTANT Prior to updating your system, you *must* install the latest version of the `update-ux` command.

Step 1. Insert the HP-UX 11i v2 DVD and wait for the drive's busy light to stop blinking.

Step 2. Find the DVD-ROM device file name:

```
ioscan -f -C disk | more
```

`/dev/dsk/c1t2d0` is a typical device name.

Step 3. Create the directory under root(`/`):

```
mkdir /dvdrom
```

Step 4. Mount the DVD onto the new directory as a file system. For example:

```
mount /dev/dsk/c1t2d0 /dvdrom
```

Step 5. Using either ksh, Posix-sh or Bourne shell, install `update-ux` on the target system.

From the DVD media

```
swinstall -s /dvdrom Update-UX
```

From a depot

The depot example uses the following syntax: `depot_server:<depot_path>`.

```
swinstall -s depot_server:/var/depots/my_depot Update-UX
```

Step 2: Using update-ux to Update to HP-UX 11i v2

After you have installed `update-ux` on the target system (see “Step 1: Installing the update-ux Command (Required Task)” on page 100) and, optionally, created an update depot containing all software to be installed, (see “Optional Step: Creating a Network Depot” on page 99), you can now proceed to update your target system. Use the following syntax to run `update-ux`:.

update-ux Syntax

update-ux -s *source_location* [-?] [-n|-y] [-i] [-x *option=value*] [*sw_spec*]

where:

`-s source_location`

Specifies the source containing the new software depot. Possible locations are a local directory, a mounted DVD containing a depot, or a remote system-and-depot combination. All paths used in the *source_location* must be absolute paths. If *source_location* is a remote system/depot combination, the remote system should be specified first, followed by the absolute path to the remote depot, separated by a colon with no spaces; for example: `swperf:/var/spool/sw`

`-?` Prints the usage statement.

`-n|-y` `update-ux` issues a message and waits for your response to continue whenever something unexpected is attempted. Specify `-n` at first (or omit this option) to have `update-ux` "not continue" when an error is issued. When you have reviewed/resolved all errors, use `-y` instead of `-n` to have `update-ux` ignore all messages which would otherwise cause `update-ux` to wait for a user response.

`-i` Specifies the `swinstall` interactive user interface to select software products from a depot or bundle during the update. For more information, see the *swinstall* (1M) manpage.

`-x option=value`

Specifies `swinstall` options to be applied during the update. For a typical update, no `swinstall` options are required. `swinstall -p` (preview) is not supported. For information on `swinstall` options, see the *swinstall* (1M) manpage or the *Software Distributor Administration Guide*.

sw_spec Specifies one or more optional software bundles to be updated, such as an operating environment (OE) bundle name, a network-driver bundle or Ignite-UX. If

an OE bundle name is not included on the command line, only the core OS will be updated. For more information, see Appendix D, “Software Distribution Media,” on page 161.

For more about `update-ux`, see the *update-ux* (1M) manpage.

update-ux Examples

Your system configuration and your planning will determine how you use `update-ux`. In this section, we provide some scenarios and examples of how you might use `update-ux` to update your system:

- *Updating to HP-UX 11i v2 OS (OE Installed)* on page 104 shows you how to update to HP-UX 11i v2 with an operating environment.
- *Updating to HP-UX 11i v2 OS (No OE Installed)* on page 105 shows you how to update the HP-UX 11i v2 OS without an operating environment.
- *Adding or Upgrading an OE* on page 105 shows you how to update your system by either adding or upgrading the operating environment on your system.
- *Updating From a Network Depot* on page 105 shows you how to update your system from a server on the network.
- *Updating Using Interactive Software Selection* on page 106 shows you how to use the interactive option to manually select the software you want to update.
- *Updating Selectable Software* on page 106 shows you how to update your system with selectable software bundles.

We Recommend this Update:

Updating to HP-UX 11i v2 OS (OE Installed)

To update to HP-UX 11i v2 and include an HP-UX 11i v2 operating environment, you need to specify the OE bundle name in the `update-ux` command. The OE bundles names are:

`HPUX11i-OE`	HP-UX 11i v2 Foundation OE
`HPUX11i-OE-Ent`	HP-UX 11i v2 Enterprise OE
`HPUX11i-OE-MC`	HP-UX 11i v2 Mission Critical OE
`HPUX11i-MTOE`	HP-UX 11i v2 Minimal Technical OE
`HPUX11i-TCOE`	HP-UX 11i v2 Technical Computing OE

For example, to update to HP-UX 11i v2 and install HP-UX 11i v2 Foundation OE, insert the HP-UX 11i v2 DVD in the local drive mounted at `/dvdrom`. As root, enter:

```
/usr/sbin/update-ux -s /dvdrom HPUX11i-OE
```

Alternately, if you wanted to update to HP-UX 11i v2 and install the Enterprise OE (from a supported update path), you would enter:

```
/usr/sbin/update-ux -s /dvdrom HPUX11i-OE-Ent
```

NOTE Please be sure to read See “Supported Update Paths to HP-UX 11i v2” on page 34 to ensure that you are updating your system from a supported update path.

NOTE We recommend that you install all of the selectable OE bundles that you want (such as Ignite-UX, HP-UX IPFilter, and the selectable network drivers) at the same time that you do your update. See “Updating Selectable Software” on page 106 for more information.

For details on what is included in each of the Operating Environments, see Appendix D, “Software Distribution Media,” on page 161.

Updating to HP-UX 11i v2 OS (No OE Installed)

NOTE HP strongly recommends that you update your system with an operating environment to provide you with an integrated and tested set of supporting software and applications.

If you do not specify an OE bundle `update-ux` will only install the OS, networking, diagnostic and CDE bundles listed on page 161. Any additional software bundles associated with an OE are not installed.

For example, to update the HP-UX 11i v2 OS, insert the HP-UX 11i v2 DVD in the local mounted drive and enter the following command:

```
/usr/sbin/update-ux -s /dvdrom
```

Adding or Upgrading an OE

To install an OE on an HP-UX 11i v2 system not containing an OE, or to upgrade HP-UX 11i v2 to higher-level OE (for example, HP-UX 11i v2 Foundation OE to HP-UX 11i v2 Enterprise OE) insert the HP-UX 11i v2 DVD and specify the new OE using the `update-ux` command. For example, to add the HP-UX 11i v2 Enterprise OE, enter:

```
/usr/sbin/update-ux -s /dvdrom HPUX11i-OE-Ent
```

When the update is complete, the original OE bundle wrapper (if one existed) will be removed and replaced with the new bundle wrapper.

IMPORTANT Upgrading to a higher level OE is only supported if you are updating from a lower level HP-UX 11i v2 operating environment. In other words you cannot update, for example, from HP-UX 11i v1.6 Foundation OE to HP-UX 11i v2 Enterprise OE

You can not downgrade from a higher level OE to a lower level OE

Updating From a Network Depot

To update from an network depot on a remote system named `netdepot`, include the path to the depot in the `update-ux` command. The following example does an update to the HP-UX 11i v2 Enterprise OE:

```
/usr/sbin/update-ux -s netdepot:/update/update_depot \
HPUX11i-OE-Ent
```

Updating Using Interactive Software Selection

To interactively select software for an update, use the `-i` option. For example:

```
/usr/sbin/update-ux -s /cdrom -i
```

`update-ux` displays `swinstall`'s interactive user interface with software already selected to match the default update. Now you can change software selections. For example, you can select a non-default network driver or a web browser before performing the update. Since `update-ux` selects OS, networking, language, and diagnostic bundles by default, the interactive user interface provides a way to deselect the default software.

CAUTION Do not combine `-i` and `-x` options in the same `update-ux` command.

IMPORTANT `swinstall`'s interactive user interface does not provide for selecting mutually exclusive selectable software bundles. As a result, if you select more than one HP-UX Bastille security configuration bundle from the **SecurityChoices** section of the **Select Additional Software** screen (for example, `Sec20MngDMZ` and `Sec30DMZ`), HP-UX Bastille will apply the *highest* security configuration selected.

For help using `swinstall` in interactive mode, see the *swinstall* (1M) manpage or the *Software Distributor Administration Guide*.

Updating Selectable Software

To update to HP-UX 11i v2 and include additional selectable software such as one of the HP-UX Bastille Security Configuration bundles, like `Sec30DMZ` (see "Install-time Security Considerations" on page 43):

Step 1. Assuming you are updating from the DVD media, as `root`, enter:

```
/usr/sbin/update-ux -x /dvdrom HPUX11-OE Sec30DMZ
```

In the above command, `update-ux` installs the HP-UX 11i v2 Foundation Operating Environment bundles listed on Appendix D, “Software Distribution Media,” on page 161, plus the `Sec30DMZ` security configuration bundle (including HP-UX Bastille, Perl, HP-UX IPFilter - included in `Sec00Tools`).

If you only want to update your system with a selectable software bundle, enter:

```
/usr/sbin/update-ux -s /dvdrom Sec30DMZ
```

NOTE If you select more than one HP-UX Bastille security configuration bundle, for example `Sec20MngDMZ` and `Sec30DMZ`, the *highest* level of security will be applied to your system.

IMPORTANT HP-UX Bastille’s security model is such that it provides *incrementally* higher security (metaphorically, like a ratchet). As a result, you can update from a lower security level to a higher security level (example: `Sec10Host` to `Sec20MngDMZ`.

If you intend to downgrade from a higher security level to a lower security level, HP recommends that you run **`bastille -r`** before you update your system to ensure that only the security settings you wanted in the lower security level are applied. Otherwise, you may encounter some security configurations left over from the previous security settings applied by HP-UX Bastille.

Step 2. Complete any configuration for HP software explained in the *HP-UX 11i v2 Release Notes* available on the Instant Information DVD and on **`http://docs.hp.com/hpux/os/11iv2`**. In this example, to complete the HP-UX Bastille installation, see the security chapter in the *Managing Systems and Workgroups* manual.

Configuring OE Applications

After updating to an HP-UX 11i v2 operating environment (OE), some OE products will need post-installation configuration to make them functional. This may be indicated by a message logged in `/var/adm/sw/swagent.log`.

Refer to each product's installation instructions for details. The location of OE product documentation is listed in the *HP-UX 11i v2 Release Notes* (available on the Instant Information DVD and **`http://docs.hp.com`**).

Creating an HP Service Partition

Update-UX does not create or modify the HP Service Partition required by some HP Offline Diagnostics tools. If you are updating from a system that does not have an HP Service Partition, such as system newly updated from HP-UX 11i v1.6, you will need to create the HP Service Partition now.

To Determine If the HP Service Partition Exists

Step 1. As root, find the location of your root disk:

- If you are using LVM, enter the following command:

  `lvlnboot -v`

  You should see results similar to the following:

```
# lvlnboot -v
Boot Definitions for Volume Group /dev/vg00:
Physical Volumes belonging in Root Volume Group:
        /dev/dsk/c2t1d0s2 (0/1/1/0.1.0) -- Boot Disk
Boot: lvol1     on:     /dev/dsk/c2t1d0s2
Root: lvol3     on:     /dev/dsk/c2t1d0s2
Swap: lvol2     on:     /dev/dsk/c2t1d0s2
Dump: lvol2     on:     /dev/dsk/c2t1d0s2, 0
```

- For VxVM, enter the following command:

  `vxprint -d`

  You should see output similar to the following:

```
# vxprint -d
Disk group: rootdg
TY NAME         ASSOC        KSTATE   LENGTH   PLOFFS   STATE    TUTIL0  PUTIL0
dm rootdisk01   c0t0d0s2     -        34640800 -        -        -       -
```

Step 2. Run the `idisk` command on the boot disk. For example on LVM enter:

```
# idisk -p /dev/rdsk/c2t1d0
```

Figure 6-2 shows `idisk` output without an HP Service Partition installed;Figure 6-3 shows `idisk` output showing an HP Service Partition installed.

Figure 6-2 `idisk` Output Showing No HP Service Partition Installed

```
idisk version: 1.31
EFI Primary Header:
        Signature                 = EFI PART
        Revision                  = 0x10000
        HeaderSize                = 0x5c
        HeaderCRC32               = 0x20e10a24
        MyLbaLo                   = 0x1
        AlternateLbaLo            = 0x43d671f
        FirstUsableLbaLo          = 0x22
        LastUsableLbaLo           = 0x43d66fc
        Disk GUID                 = 59609df4-c295-11d7-8001-d6217b60e588
        PartitionEntryLbaLo       = 0x2
        NumberOfPartitionEntries  = 0xc
        SizeOfPartitionEntry      = 0x80
        PartitionEntryArrayCRC32  = 0xc0a93cc2

Primary Partition Table (in 512 byte blocks):
    Partition 1 (EFI):
        Partition Type GUID       = c12a7328-f81f-11d2-ba4b-00a0c93ec93b
        Unique Partition GUID     = 5960a1be-c295-11d7-8002-d6217b60e588
        Starting Lba              = 0x22
        Ending Lba                = 0xfa021
    Partition 2 (HP-UX):
        Partition Type GUID       = 75894c1e-3aeb-11d3-b7c1-7b03a0000000
        Unique Partition GUID     = 5960a1fa-c295-11d7-8003-d6217b60e588
        Starting Lba              = 0xfa022
        Ending Lba                = 0x430e021
```

Figure 6-3 idisk Output Showing HP Service Partition Installed

```
idisk version: 1.31
EFI Primary Header:
        Signature                 = EFI PART
        Revision                  = 0x10000
        HeaderSize                = 0x5c
        HeaderCRC32               = 0x20e10a24
        MyLbaLo                   = 0x1
        AlternateLbaLo            = 0x43d671f
        FirstUsableLbaLo          = 0x22
        LastUsableLbaLo           = 0x43d66fc
        Disk GUID                 = 59609df4-c295-11d7-8001-d6217b60e588
        PartitionEntryLbaLo       = 0x2
        NumberOfPartitionEntries  = 0xc
        SizeOfPartitionEntry      = 0x80
        PartitionEntryArrayCRC32  = 0xc0a93cc2

Primary Partition Table (in 512 byte blocks):
    Partition 1 (EFI):
        Partition Type GUID       = c12a7328-f81f-11d2-ba4b-00a0c93ec93b
        Unique Partition GUID     = 5960a1be-c295-11d7-8002-d6217b60e588
        Starting Lba              = 0x22
        Ending Lba                = 0xfa021
    Partition 2 (HP-UX):
        Partition Type GUID       = 75894c1e-3aeb-11d3-b7c1-7b03a0000000
        Unique Partition GUID     = 5960a1fa-c295-11d7-8003-d6217b60e588
        Starting Lba              = 0xfa022
        Ending Lba                = 0x430e021
    Partition 3 (HPSP):
        Partition Type GUID       = e2a1e728-32e3-11d6-a682-7b03a0000000
        Unique Partition GUID     = 5960a22c-c295-11d7-8004-d6217b60e588
        Starting Lba              = 0x430e022
        Ending Lba                = 0x43d6021
```

In Figure 6-2, only two partitions are displayed in the Primary Partition Table list: Partition 1 (EFI) and Partition 2 (HP-UX). If the HP Service Partition were already configured, you should see a third partition listed as HPSP.

If you already have an HP Service Partition (your output looks similar to Figure 6-3), you may skip the rest of this section and continue with, "The Next Step" on page 115.

Before You Begin

You will need to ensure that you have a minimum of 1 GB of disk space that you can allocate for use by the EFI Boot Disk Partition and the new HP Service Partition prior to beginning this procedure.

Make sure that you are familiar with the Ignite-UX *make_tape_recovery* (1M) or *make_net_recovery* (4) commands before you start. You can also find more information about Ignite-UX, including the latest documentation, on the web:

`http://software.hp.com/products/IUX`

The following procedure will take you through creating and configuring a new HP Service Partition.

Creating an HP Service Partition

Step 1. Determine which recovery method to use:

- `make_tape_recovery` generally provides faster recovery/restore performance than `make_net_recovery`. However HP Integrity servers do not support direct boot from tape devices. Consequently, you will need to perform a "two-step media" recovery process. This means that you will need a tape device with enough capacity to hold the system archive, the HP-UX 11i v2 DVD media along with the recovery tape to create the HP Service Partition and restore your system.
- `make_net_recovery` recovery/restore performance is determined by the speed of your network. In most cases, this method is slower than `make_tape_recovery`. However, you can boot directly to the Ignite-UX server containing your system archive.

IMPORTANT

The recovery process may fail if the boot disk file system is very full while attempting to create a full archive with `make_tape_recovery` or `make_net_recovery`, causing either the system or user data restore to run out of space.

HP strongly recommends that you back up your user data using other supported backup software for HP-UX 11i v2, and use `make_tape_recovery` or `make_net_recovery` to create an archive of your system data.

See the *Ignite-UX Administration Guide* for more details on the `make_net_recovery` and `make_tape_recovery` commands.

Step 2. Make a system archive using either the `make_net_recovery` or `make_tape_recovery` command:

- To save a system archive to an Ignite-UX server:

  ```
  make_net_recovery -s iuxServer -x inc_entire=vg00
  ```

- To save a system archive to tape:

  ```
  make_tape_recovery -a /dev/rmt/0mn -x inc_entire=vg00
  ```

Step 3. Reboot your system. If you created a system archive using the `make_tape_recovery` command, insert your HP-UX 11i v2 DVD into the DVD drive, before resetting your system.

Step 4. Depending on which method you used to create your system archive, choose the appropriate boot method:

- `make_net_recovery` method: Select the appropriate network EFI boot option
- `make_tape_recovery` method: Select the appropriate DVD boot option

NOTE

See the “System Recovery” chapter of the *Ignite-UX Administration Guide* for more details and information about the appropriate boot methods.

Step 5. Enter the appropriate Keyboard device for your system.

Step 6. The **Welcome to Ignite-UX!** screen appears. Using the **Tab** key, select **Advanced Options**. The **User Interface and Media Options** screen appears.

Step 7. From the list of User Interface Options, select **Advanced Installation**, then select **OK**. The **/opt/ignite/bin/itool()** screen appears.

Step 8. From the **Basic** tab, select **Additional...**. The **Additional Configuration Controls** screen appears. This screen includes a list of current partitions and their sizes (in KB).

Step 9. Select **EFI Boot Partition**. A popup screen appears listing partition size options (in KB) that you can choose from. Select `512000` (500 MB) from the list and select **OK**. You should now be back in the **Additional Configuration Controls** screen.

Step 10. Select **HP Service Partition**. Select `409600` (400 MB) from the list and select **OK**.

Step 11. In the **Additional Configuration Controls** screen, select **OK**.

Step 12. In the **/opt/ignite/bin/itool()** screen select **Go!** Your system partitions (EFI and HP Service Partition) have been configured and Ignite-UX will now begin restoring your system data.

Step 13. If you backed up your user data using other backup software, restore this data now following the vendor's restore procedures.

Step 14. After your system and user data has been restored, run the `idisk` command again to verify that the HP Service Partition was created and the partition size is correct.

The Next Step

You have completed the update process:

- “Before You Begin” on page 94
- “Reviewing the Update Process” on page 95
- “Updating Tips” on page 97
- “Updating to HP-UX 11i v2” on page 99
- “Configuring OE Applications” on page 108
- “Creating an HP Service Partition” on page 109

Continue with the next chapter:

- Chapter 7, “Verifying System Install or Update,” on page 117

7 Verifying System Install or Update

This chapter provides steps to verify that your system is ready and back in production. Before you begin, you should have already completed either installing or updating to HP-UX 11i v2.

What You Will Find in This Chapter

- "Verifying the HP-UX Install or Update" on page 118
- "Verifying HP-UX Applications" on page 120
- "Changing the State of HP-UX Installed Patches" on page 121

To complete the steps in this chapter, we estimate you require 2-3 hours to verify the HP-UX install or update, applications, and patches. Please note your time may vary.

TIP

This chapter provides verification information for the HP-UX install, update, applications, and patches. To check other software patches and applications, please refer to the appropriate vendor documentation.

Verifying the HP-UX Install or Update

To verify that HP-UX 11i v2 was installed or updated successfully, use the Software Distributor commands `swlist` and `swverify`.

Start Task

1. Run `swlist` to determine all software installed on your system:

   `/usr/sbin/swlist`

   You can control the detail level of the information displayed with the `-l` option. To see all bundles installed, use this command:

   `/usr/sbin/swlist -l bundle`

   To see all products installed or all filesets installed, use these commands:

   `/usr/sbin/swlist -l product`

   `/usr/sbin/swlist -l fileset`

   For a cold-install, compare your list with the list of software products in the `TABLE_OF_CONTENTS` files on the HP-UX 11i v2 Operating System DVD and on the Applications DVD.

2. Run `swverify` to verify that each bundle is intact. Several examples follow:

   - To verify that an installed English 64-bit OS is intact, enter the command:

     `/usr/sbin/swverify HPUXBaseOS`

   - To verify all HP software on your system, enter the command:

     `/usr/sbin/swverify \*`

   The Selection process determines all dependencies of all software. After the list, the following message displays:

   ```
   * Selection succeeded.
   ```

   Then, the Analysis process verifies that each required file is loaded (existence and revision), that all required dependencies are met, and then it runs any available verification scripts for the product. After the analysis, the following message displays:

   ```
   * Analysis succeeded.
   ```

If the analysis fails, either view `/var/adm/sw/swagent.log` to review the analysis log or run the `swjob`... command listed at the end of the `swverify` report sent to standard output.

```
* Verification succeeded.
```

TIP

For help with these commands, see the *swlist* (1M) and *swverify* (1M) manpages, and the *Software Distributor Administration Guide*, which is available on the Instant Information CD or the web:

`http://docs.hp.com/hpux/os/11iv2`

NOTE

The HP-UX Bastille install-time security configuration bundles (`Sec10Host`, `Sec20MngDMZ`, or `Sec30DMZ`) will not appear in the `swagent.log`. Instead, review your `rc.log` to determine the status of the install-time security configuration. If errors are found in the `rc.log`, review `/var/opt/sec_mgmt/bastille/level-application-errors` for more details.

Verifying HP-UX Applications

To verify that all required HP-UX applications have been installed or updated, you should have already tried the Software Distributor commands `swlist` and `swverify`, as explained in “Verifying the HP-UX Install or Update” on page 118.

For example, to verify that the HP-UX 11i v2 default operating environment is intact on your system, enter the command:

```
/usr/sbin/swlist -l bundle
```

Identify the bundle(s) containing the OE extension.

Then enter this command to verify it:

```
/usr/sbin/swverify bundle-name
```

If you get an error like the following, then the software identified is incompatible with your system and needs to be replaced with a newer version:

```
The product “xyz,l=/,r=B.xx.xx” is not compatible with this
system's architecture or operating system.
```

Start Task

To update the HP-UX software, do the following:

1. Mount the HP-UX Applications DVD that contains the software.
2. Go to Chapter 8, “Installing Patches and Applications,” on page 125 to install or update the new version using the `swinstall` command.
3. Use the application; this is the best way to verify the application’s operation.

   Open each application, view a working document or project, and perform typical production operations such as editing a file and printing a report. If the application does not work as expected, see the application’s release notes and documentation to determine the problem.

Changing the State of HP-UX Installed Patches

The `swinstall` utility permits the installation of multiple patch bundles with a deferred configuration. Some of these patch bundles may contain superseded patches that do not get configured.

After executing **`swverify \*`** on your system, these patches show an "installed" software state in the `swagent.log` file. This "installed" software state is not treated as a warning or error by `swverify`.

The "installed" patches may present a problem when the current "applied" patch is removed using `swremove`. The `swremove` command does not detect or configure a superseded patch with an "installed" software state.

Start Task

Follow these steps to check the state of patches currently applied to your system:

1. List the "SD software state" and "patch state" of both superseded patches and active (or applied) patches on your system:

   `/usr/sbin/swlist -a state -a patch_state` ***`patch_number`***

   To list all patches, use the command:

   `/usr/sbin/swlist -a state -a patch_state PH*`

   For example, the above `swlist` options may show some differences between an older (superseded) patch and the current (applied) patch on your system.

NOTE

Superseded patches left in an "installed" SD state do not cause any problems, but they require an extra `swconfig` step when they become the current "applied" patch.

2. HP recommends that you configure a current "applied" patch in the "installed" SD state with the following command:

   `/usr/sbin/swconfig` ***`patch_number`***

WARNING

This problem only exists when an active patch is removed and rolled back to a superseded patch left in an "installed" state. Executing `swconfig` on a patch in the "superseded" patch state is dangerous; do not do it.

3. Use the following options to list active products, patches, and states:

   ```
   swlist -l fileset -a state -a patch_state
   ```

   The previous `swlist` options will display all active (non-superseded) filesets with their "SD software state" and "patch state" attributes.

   You can change `swlist` to display superseded patches by adding the following line to the `/var/adm/sw/defaults` file:

   ```
   swlist.show_superseded_patches=true
   ```

   or you can use the following command to display superseded patches:

   ```
   swlist -l fileset -a state -a patch_state -x \
   swlist.show_superseded_patches=true
   ```

TIP

For help with these commands, see the *Software Distributor Administration Guide*, which is available on the Instant Information DVD and on the web:

`http://docs.hp.com/hpux/os/11iv2`

The Next Step

You have completed the verification process:

- “Verifying the HP-UX Install or Update” on page 118
- “Verifying HP-UX Applications” on page 120
- “Changing the State of HP-UX Installed Patches” on page 121

Continue with the next chapter:

- Chapter 8, “Installing Patches and Applications,” on page 125

8 Installing Patches and Applications

This chapter describes how to install HP-related patches and non-OS HP applications. Before you being, you should have already completed Chapter 7, “Verifying System Install or Update,” on page 117.

What You Will Find in This Chapter

- “Keeping Up to Date with the Latest Critical Patches” on page 126
- “Installing OS Patches Required by Individual Applications” on page 128
- “Tips for Installing or Updating HP Applications” on page 131
- “Backing Up the System” on page 135
- “The Next Step” on page 136

To complete the steps in this chapter, we estimate you require 1-2 hours per patch and 1-2 hours per application. Time per patch is reduced if you download and install multiple patches in a single session. Please note your time may vary.

TIP

This chapter provides installation information for HP-related patches and applications only. To install or upgrade other vendor patches and applications, please refer to the appropriate vendor documentation.

You can find the complete list of applications included in the HP-UX 11i v2 release in the HP Application Availability Matrix:

`http://www.software.hp.com/MATRIX`

Keeping Up to Date with the Latest Critical Patches

After you installed HP-UX 11i v2, you will have the latest critical patches installed on your system that shipped with the media.

However, other recommended critical or required patches may have become available after the initial release of the media. You should check on a regular, proactive basis to see if Hewlett-Packard has released any new, recommended critical patches.

HP-UX Patching Resources

You should install any *additional* recommended critical or required patches to your base OS and applications which may have occurred since the initial HP-UX 11i v2 install media was produced.

Using the Custom Patch Manager

You can identify and download all needed patches for your system by using the HP Custom Patch Manager:

`http://itrc.hp.com/wps/bin/doc.pl/sid=00f2dea61cb1fc364e`

NOTE

As of this release, use of CPM requires a current support contract or it may be used on a fee-per-use basis.

If you are already registered, log in with your user ID and password. If you are not registered, follow the instructions on the screen. Remember to save your user ID and password.

CPM will identify recommended patches for your system and all required dependencies. Once you have downloaded needed patches, install them using the `swinstall` command, as explained in “Installing OS Patches Required by Individual Applications” on page 128.

Downloading Individual Patches

When you need to find and download a single patch, use the HP Patch Database. Begin at the HP IT Resource Center web site:

`http://itrc.hp.com`

From the home page, select **individual patches**.

If you are already registered, log in with your user ID and password. If you are not registered, follow the instructions on the screen.

From the **patch database main** page, select **HP-UX** and use the search tool to find required patches and download them. You may download patches individually or as a group. All dependent patches will also be identified. Once you have downloaded needed patches, install them using the `swinstall` command as explained in "Adding HP-UX Patches to a Software Depot or System" on page 129.

HP Security Bulletins & Security Patch Check Tool

To keep informed on newly identified security patches and HP-UX patches released in a previous week, you can sign up to receive periodic HP Security Bulletins and weekly HP-UX Patch Digests, respectively. To subscribe, go to the HP IT Resource Center:

`http://itrc.hp.com`

Under **Maintenance and Support**, select subscribe to **security bulletins & patch digests**. For security bulletins, register for the HP-UX Security Bulletins digests, and for all HP-UX patches register for HP-UX 11.X Patch Digests. Security Patch Check is a tool available for identifying security patches applicable for your system. For more information on Security Patch Check, go to the web:

`http://www.software.hp.com/cgi-bin/swdepot_parser.cgi/cgi/displayProductInfo.pl?productNumber=B6834AA`

Other HP-UX Patching Resources

If you are not familiar with patching HP-UX, documents in the **Patch Management** section of the HP documentation web site may be helpful.

`http://docs.hp.com`

Go to the operating system or environment version and then search for patch management. General guidelines for patching HP-UX are provided in the HP-UX Software Transition Kit:

`http://devresource.hp.com/STK/hpuxpatch.html`

Also see "Managing Patches" in the *Software Distributor Administration Guide*.

Installing OS Patches Required by Individual Applications

If the operating system requires any new HP-UX patches, you can do the following:

- Determine the list of HP-UX patches prior to cold-install
- Obtain the newer HP-UX patches
- Get the HP-UX patch information
- Remove HP-UX patches, if necessary
- Add newer HP-UX patches, if necessary
- Keep up to date with the latest critical patches

Determining the List of Previous HP-UX patches

New or replacement patches may be required as dependencies for application software installed on your system. Before removing a patch or a patch bundle, determine the dependencies required by the installed software. You can find this information in the release notes for the products and the readme files for the patches. If necessary, you may have to remove some installed software from your system.

Obtaining Newer HP-UX patches

To obtain newer patches, see the “HP-UX Patching Resources” on page 126.

Getting HP-UX Patch Information

For information on individual patches in a patch bundle, use *swlist* (1M) to list the `readme` attribute at the product level.

Start Task

1. From the depot, log in as root and enter the command:

```
/usr/sbin/swlist -s /temp/depot_name -l product -a readme
patch_name
```

2. From your system, enter the command:

```
/usr/sbin/swlist -l product -a readme patch_name
```

Removing HP-UX Patches

To remove any patches from your system, you must first determine which patches are installed.

1. To display installed patches, enter the command:

   ```
   /usr/sbin/swlist -l patch \*.\*,c=patch
   ```

2. To preview the removal analysis, enter the command:

```
/usr/sbin/swremove -p patch_name1 patch_name2 ...
```

3. You must interpret patch dependencies manually from the patch documents, that is, the *patch_name*.txt files.

CAUTION

In rare cases, you may have to remove a patch from your system. Generally, a newer patch should just be installed over a superseded patch. You should take extreme caution before ever removing a patch from your system. Always check for patch dependencies before attempting to remove any patch. The `swremove` will not do automatic patch dependency checking for you like the `swinstall` command does.

Adding HP-UX Patches to a Software Depot or System

For help on adding patches see the *Software Distributor Administration Guide*, which is available on the Instant Information CD and on the web:

`http://docs.hp.com/hpux/os/11v2`

General guidelines for patching HP-UX are provided in the HP-UX Software Transition Kit:

`http://devresource.hp.com/STK/hpuxpatch.html`

The following instructions are a general review of installing patches; see the “HP-UX Patching Resources” on page 126 for more information.

Start Task

If you are already running an HP-UX 11i v2 system, you can run `swinstall` interactively and see the contents of the depot online:

1. On the system, run `swinstall` interactively:

   `/usr/sbin/swinstall`

2. Highlight the patch bundle to select it, or individual patches and press **Return/Enter**. This opens the patch bundle to the product level.
3. For any given product (shown as a patch number):
   a. Highlight the product line to select it.
   b. Select **Actions -> Show Description of Software**. This generates a Software Description Dialogue box.
   c. From the Software Description Dialog box, select **Readme**. This generates the Readme Viewer Dialog box, through which you can scroll to find the following:
      - Affected filesets
      - Reboot requirement for the patch
      - Category tags used to create the patch
      - Symptoms the patch addresses
      - Description of the defect being fixed
      - Patch files and dependencies
      - Instructions for installing an individual patch
4. To find out which patches are in a specific category tag, use `swlist`. For example, to list the patches (by product name) for all patches categorized as hardware enablement, enter the command:

   `/usr/sbin/swlist -d -l product *,c-hardware_enablement \`
   `@ host:deport`

TIP Each patch comes with installation instructions and in some cases “special installation” instructions. For example, when installing patches, it is recommended that certain SD options be selected so that only patches applicable to the target system are loaded.

Tips for Installing or Updating HP Applications

In the previous chapters of this guide, you installed HP-UX 11i v2, installed additional patches if necessary, and verified the system. Now you should install and/or update other needed HP, non-OS applications. Here are some tips:

- To determine which products and versions are on your system use the `swlist` command:

  `/usr/sbin/swlist -l product`

- HP-UX Applications DVDs have an ASCII file on each DVD called `TABLE_OF_CONTENTS` that lists all software products delivered with the Applications DVD. This ASCII file is viewable with `vi` ,`emacs`, or any other text editor.
- To verify that all installed products are compatible with the new OS, run `swverify` as explained in “Verifying the HP-UX Install or Update” on page 118.
- Use `swinstall` to install new software or update each application not included in the HP-UX 11i v2 OS and OE you just installed. The latest versions of many HP-UX software products are provided on the HP-UX Applications DVD. To find the contents of each DVD, mount any HP-UX Applications DVD and view the `TABLE_OF_CONTENTS` file. For `swinstall` instructions, see the next section.
- Installation of application patches and applications may occur in the same `swinstall` session to save on the number of required reboots.
- For HP applications, there exists documentation that shows you how to install and use an application. The documents may include release notes, readme files, DVD and CD booklets, white papers, and guides. See the Instant Information CD and the web:

  `http://docs.hp.com`

Installing Optional Software Products

The Applications DVD that is distributed with HP-UX 11i v2 contains optional development tools and system management software.

HP-UX 11i v2 must be booted in order to install optional software products. The following is the procedure for installing products from the Applications DVD.

Step 1. Insert the Applications DVD in the DVD-ROM drive.

Step 2. Mount the Applications DVD.

To install software from the Applications DVD, you must mount the DVD as a filesystem that HP-UX 11i v2 can access.

a. Determine the DVD device name.

Use the `ioscan -funC disk` command to list disk devices, including the DVD devices.

b. Create a mount point for the Applications DVD, if one does not yet exist.

The mount point is a directory that HP-UX will use as an access point for the DVD. Often a `/cdrom` directory is used. If this directory does not exist, create it using the `mkdir /cdrom` command.

c. Use the `mount` command to mount the DVD.

Using the `mount` command, specify the DVD device name and mount point. For example, the following command mounts the `/dev/dsk/c1t0d0` device as the `/cdrom` directory.

```
mount /dev/dsk/c1t0d0 /cdrom
```

See the *mount* (1M) manpage for details.

Step 3. Use `swinstall` to install software from the Application DVD.

The following example command runs `swinstall` to install software from the source mounted at `/cdrom`.

```
swinstall -i -s /cdrom
```

See the *swinstall* (1M) manpage for details.

Step 4. Select and install software from the Applications DVD.

The `swinstall` program presents an interface for selecting and installing software from the DVD.

Step 5. Unmount and eject the Applications DVD.

You must unmount the DVD before you can eject it from the DVD-ROM drive. The DVD is automatically unmounted whenever the server reboots.

Use the `umount` command to unmount the DVD. For example, `umount /cdrom` will unmount the `/cdrom` file system. See the *umount* (1M) manpage for details.

Using Ignite-UX

You can use the Ignite-UX utility to install HP-UX applications on systems using a local mount directory, or over a network using an Ignite-UX server. Ignite-UX is an HP-UX product that facilitates installing and configuring HP-UX systems.

See the *Ignite-UX Administration Guide* for detailed instructions on how to install HP-UX applications. It is on the Instant Information DVD and on the web:

`http://docs.hp.com/hpux/os/11v2`

Ignite-UX can address your need to perform system installations and deployment, often on a large scale. With Ignite-UX, you can do the following:

- Create and reuse standard system configurations.
- Archive a standard system configuration and use that archive to replicate systems in far less time than with other methods.
- Create customized processes to allow interactive and unattended installs.
- Recover OS and applications more easily after crashes and hardware failures.

For example, you can install the Ignite-UX utilities to install HP-UX and applications on other systems:

1. Mount the HP-UX 11i v2 DVD containing Ignite-UX (mount point is assumed here to be */cdrom*) and enter the command:

`/usr/sbin/swinstall -s /cdrom B5725AA`

2. After installing the software, see the Ignite-UX release notes and *Ignite-UX Administration Guide* to complete any post-install steps and configuration.

After running an Ignite-UX install session, you have a working HP-UX client system.

Backing Up the System

Now that you have a solid system configuration, you need to back it up. This provides you with a stable configuration that you can use to rebuild the system, if necessary.

You can use the Ignite-UX product for making a system recovery backup. See the *Ignite-UX Administration Guide*:

`http://docs.hp.com/hpux/os/11iv2`

Depending on your work environment, you can use the following commands:

- `fbackup` and `frecover` to create a backup archive and `frecover` to restore the system, if necessary
- Ignite-UX commands: `make_net_recovery` and `make_tape_recovery`

The Next Step

You have completed the additional install and back-up processes:

- “Keeping Up to Date with the Latest Critical Patches” on page 126
- “Installing OS Patches Required by Individual Applications” on page 128
- “Tips for Installing or Updating HP Applications” on page 131
- “Backing Up the System” on page 135

Continue with the last chapter:

- Chapter 9, “Configuring and Maintaining HP-UX 11i v2,” on page 137

9 Configuring and Maintaining HP-UX 11i v2

This chapter outlines steps on how to configure your system to meet your needs. Before you begin you should have already completed the install or update of HP-UX 11i v2, and verified it as described in the previous chapters.

What You Will Find in This Chapter

- "Configuring Your HP-UX 11i v2 System" on page 138
- "Maintaining Your HP-UX 11i v2 System" on page 140

To complete the steps in this chapter, we estimate you require 2-4 hours to configure the system while the time to maintain your system is ongoing. Please note that your time may vary.

Configuring Your HP-UX 11i v2 System

Now that you have installed or updated HP-UX 11i v2 and any additional software and patches, your next task is to configure your system. You can find many of these tasks in *Managing Systems and Workgroups: A Guide for HP-UX System Administrators*.

The following list breaks these tasks into several categories to assist you in finding the information you need:

- **Networking and Connectivity**
  - Manually setting system information: Use the `set_parms` command to configure your system's hostname, IP Address, DNS, and other network and system data. For more information about `set_parms`, see the *Managing Systems and Workgroups: A Guide for HP-UX System Administrators* book, or the *set_parms* (1M) manpage.
- **File System Administration**
  - Small Memory Systems (less than 1GB/CPU RAM): If you have less than 1GB/CPU of memory, please see Appendix C, "Controlling Memory Utilization of VxFS 3.5 on HP-UX 11i v2," on page 155 for details about optimizing VxFS for your system.
  - Setting Up File Systems: Depending on how you want to manage your physical volumes, choose one of the following:
    - LVM: See the *Managing Systems and Workgroups: A Guide for HP-UX System Administrators* on **`http://docs.hp.com`**.
    - VxVM: See the *VERITAS Volume Manager 3.5 Administrator's Guide* on the Veritas web site
  - Network File Systems (NFS): If you want to make local directories available to other hosts on the network, see *Installing and Administering NFS Services* on **`http://docs.hp.com`**
- **Managing Users and Groups**
  - Adding Users and Groups: See *Managing Systems and Workgroups: A Guide for HP-UX System Administrators* on **`http://docs.hp.com`**

- **Printers and Peripherals**

  — Printers: See *Managing Systems and Workgroups: A Guide for HP-UX System Administrators* on **`http://docs.hp.com`**.

  — Peripherals: See *Configuring HP-UX for Peripherals*

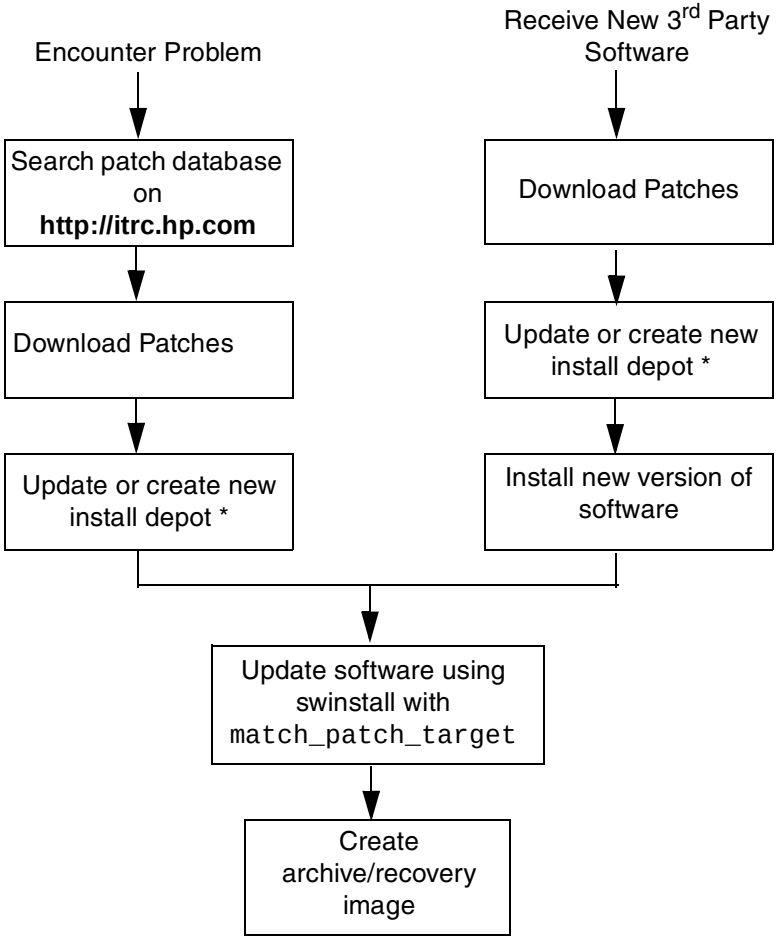
- **Other Tasks**

  You can find information about other tasks for HP-UX 11i v2 at **`http://docs.hp.com/hpux/os/11iv2`**

Maintaining Your HP-UX 11i v2 System

The following flowchart offers a recommended method for maintaining your HP-UX 11i v2 system using the HP software support services.

Figure 9-1 Reactive Software Maintenance



* For help creating depots, see the *Software Distributor Administration Guide*. Depots can contain applications from the HP-UX Application DVDs.

A Data Collection Tables

When installing HP-UX 11i v2, you need to enter information in the Network Data and Miscellaneous Data collection tables.

What You Will Find in This Appendix

- "Network Data Collection Table" on page 142
- "Miscellaneous Data Collection Table" on page 143

NOTE

These additional points should help you determine when to use the collection tables:

- If you chose the Guided Install, the HP-UX Install Wizard prompts you for the data in these tables at various stages during the install.
- If you chose the Advanced Install, an interface gives you the opportunity to enter all of this data at the beginning of the install. The interface is a tabbed file-folder and character-based.
- If you choose to network-enable your system, you must designate a unique host name, host Internet Protocol (IP) address, and other network information for your server or workstation.

  Talk to your site network administrator for the details to include in these tables.

Network Data Collection Table

The following Network Data collection table provides HP-UX commands that you can use after the install to confirm specific information.

Table A-1 Enter Network Data

Type of Data	Enter Your Specific Data	HP-UX command to confirm data after system is up and running
Host Name		`uname -n`
Host IP Address		`nslookup` *name*
Subnet Mask		`grep SUBNET_MASK /etc/rc.config.d/netconf`
Default Gateway IP Address		`netstat -r`
Domain Name		`cat /etc/resolv.conf`
DNS IP Address		`cat /etc/resolv.conf`
NIS Domain Name		`grep NIS_DOMAIN /etc/rc.config.d/namesvrs`

Miscellaneous Data Collection Table

The following Miscellaneous Data collection table may contain some items that are not familiar to you, but they are all questions that you will be asked during the install.

The install process describes all options in detail, so you can defer making decisions about those items unfamiliar to you until you reach that point in the install.

Table A-2 Enter Miscellaneous Data

Type of Data	Enter Your Specific Data
Type of Desktop	
Root DiskPath	
Root Swap Space	
Filesystem Type LVM, VxVM w/VxFS, or Whole disk with VxFS	
Root Disk Volume Group Disks (How many disks you want placed into the root disk volume group and whether or not you want the disks to be striped?)	
Select additional software (All, HP-UX Additions, Uncategorized)	
Pre-Installed Disk Information (Is overwritten during the install disk, see Root Disk Path) This is a “review” confirmation step.	

B Known Problems and Troubleshooting

This appendix lists known problems and troubleshooting steps for the install and update.

What You Will Find in This Appendix

- "Known Install/Update Problems" on page 146
- "Uninstalling HP-UX 11i v2" on page 151
- "Restrictions with Netscape Communicator" on page 152.
- "Character-code Handling with Perl" on page 153

NOTE

As the HP-UX 11i v2 install progresses, you will see messages relating to the progress being entered into the log file. These messages usually refer to normal behavior. The `ERROR`, `WARNING`, and `NOTE` messages, however, have the following significance:

`ERROR`	Indicates a serious problem, usually requiring action from you in order to proceed with an installation.
`WARNING`	Indicates something out of the ordinary, but *not* fatal. The warning *may* require action from you.
`NOTE`	Indicates something out of the ordinary, but *not* fatal. The note *does not* require action from you.

Known Install/Update Problems

The following problems are known to occur in the HP-UX 11i v2 release.

HP CIFS Server Product

The new version of the HP CIFS Server A.01.09.04 is based on Samba 2.2.5 and is available on HP-UX 11i v2 release. Please refer to the HP CIFS Server 2.2e (version A.01.09.04) Release Notes for new features, known problems, and workarounds for this product. The CIFS Server 2.2e (version A.01.09.04) Release Notes are available in the Networking and Communication Section of the HP document web site:

http://docs.hp.com

Known Issues with OE Media Install Tool and Network Depots

The Ignite-UX install tool on the OE media supports the use of network depots. However, network depots must match the media depots for the choices in the install tool to work properly.

The Ignite-UX documentation also explains the setup and use of network depots without using the OE media for each installation. See the following web site for information on the Ignite-UX product:

http://software.hp.com/products/IUX

Error Message When Trying to Ignite an HP-UX 11i v1.6 System with an HP-UX 11i v2 Ignite-UX Server

If you are trying to install HP-UX 11i v2 on an HP-UX 11i v1.6 system from an HP-UX 11i v2 Ignite-UX server, you may see the following error message if your HP-UX 11i v1.6 system is using VxVM:

```
ERROR:   VxVM installs of 11.22 are not supported with the 11.23 or
          later install kernel due to VxVM 3.5 versus 3.1
          incompatibilities.  The VxVM disk group “rootdg” must be
          changed to LVM or whole-disk or be removed
```

How Do You Know If This Affects You

If your current system is running HP-UX 11i v1.6 and VxVM, and you attempt to install HP-UX 11i v2 from an Ignite-UX server, you will receive this message.

What to Do

Because of incompatibilities between VxVM 3.1 (on HP-UX 11i v1.6) and VxVM 3.5 (on HP-UX 11i v2), you can not install HP-UX 11i v2 on an HP-UX 11i v1.6 system running VxVM 3.1 from an Ignite-UX server. Instead, you can do one of the following:

- Change your volume manager to LVM or Whole Disk, and retry installing HP-UX 11i v2 from the Ignite-UX server.
- Install HP-UX 11i v2 from the DVD media.

For more information, please see the Ignite-UX website:

`http://software.hp.com/products/IUX`

HIDS Becomes Unbundled during Update

The following warning message may appear in your `swagent.log` after the update process, or from running `swverify`.

```
From swagent.log:
       * [20255] Running “checkinstall” script for fileset
         “IDS.IDS-AGT-KRN”.
WARNING: Excluding fileset IDS-AGT-KRN because the IDDS driver is
         already configured. An unbundled IDS-AGT-KRN fileset may
         result. If your system contains an unbundled IDS-AGT-KRN
         fileset, the installation, configuration and operation of
         HP-UX Host IDS is not affected. You can safely ignore the
         unbundled IDS-AGT-KRN fileset.
NOTE:    [20259] The “checkinstall” script for “IDS.IDS-AGT-KRN
gave an “exclude” return (exit code “3”). The script location was

“/var/tmp/BAAa04878/catalog/IDS.2/IDS-AGT-KRN/checkinstall”.
NOTE:    [140257] This software will be excluded from further
         processing.
       * [20255] Running “checkinstall” script for fileset
         “IDS.IDS-ADM-RUN”.

From swverify:
ERROR:   [140167] The product “IDS,l=/opt/ids,r=C.02.01.44” is not
         compatible with this system’s architecture or operating
         system. If the OS has been updated since this product was
        installed, a newer version should be installed if available
       * [140061]     Configured
IDS.IDS-AGT-KRN,l=/opt/ids,r=C.02.01.44
```

How Do You Know If This Affects You

If you update your system to HP-UX 11i v2 from either HP-UX 11i v1.6 or HP-UX 11i v2, you will encounter this error message.

The problem is caused by an 'orphaned' fileset `IDS-AGT-KRN` left on your system in order to prevent an unnecessary reboot, and results in `swverify` errors after the update.

What to Do

You can safely ignore this message. HIDS will work properly. However, if you want to ensure a clean installation of IDS:

1. Save any customization files to a safe location
2. Use the `swremove` command to remove HIDS (`J5083AA`)
3. Use the `swinstall` command to install HIDS (`J5083AA`) from the HP-UX 11i v2 media.

"Incorrect protocol version (20) in volboot file" Error

After updating to HP-UX 11i v2 from HP-UX 11i v1.6, the following error message may appear during reboot:

```
Starting vxconfigd in boot mode (pre_init_rc).
vxvm:vxconfigd: WARNING: volboot: Incorrect protocol version (20)
in volboot file.
vxvm:vxconfigd: WARNING: volboot: Using the highest supported
protocol version 40
Checking root file system.
```

How Do You Know If This Affects You

You will encounter this error if you updated an HP-UX 11i v1.6 system with VxVM 3.1 as your volume manager to HP-UX 11i v2 with VxVM 3.5. The problem is caused by different version values in the `volboot` file (`20` in VxVM 3.1; `40` in VxVM 3.5

What to Do

You can safely ignore this error message.

"Unable to flush file system metadata for /stand to disk" Warning

The following warning message will appear just before your system reboots after updating to HP-UX 11i v2 from HP-UX 11i v1.6:

```
WARNING: Unable to flush file system metadata for /stand to
disk
```

How Do You Know If This Affects You

The problem occurs after updating to HP-UX 11i v2 from HP-UX 11i v1.6. During the reboot after the update, the HP-UX 11i v2 Update-UX kernel attempts to reboot the system.

While the system has been updated with HP-UX 11i v2 bits, the system kernel is still running as HP-UX 11i v1.6 before the reboot. You will encounter this warning message because of differences between the Update-UX kernel and system kernel commands used to shut down your system.

What to Do

You can safely ignore this warning message.

`mod_load_helper` Error

After updating from HP-UX 11i v1.6 to HP-UX 11i v2, you may see the following `dmesg` or `syslog` error:

```
MOD: mod_load_helper:gvid_him_fgl(gvid_him_fgl):_load returned
error 13
```

What to Do

You can safely ignore this error.

`/stand/ioconfig` Read Warning

After cold-installing HP-UX 11i v2, you may see the following warning message while rebooting your system:

```
Booting kernel
WARNING: GIO: read_ioconfig_file(): /stand/ioconfig read
error.
        ioconfig = NULL
NOTICE: cachefs_link(): File system was registered at index 4.
NOTICE: nfs3_link(): File system was registered at index 7.
td: claimed Tachyon XL2 Fibre Channel Mass Storage card at
0/2/1/0
igelan1: INITIALIZING HP PCI 1000Base-T Core at hardware path
0/1/2/
```

How Do You Know If This Affects You

This problem occurs on new installed kernels because there is no `ioconfig` file from a previous boot. `GIO` issues the warning because it cannot find an `ioconfig` file.

What to Do

You can safely ignore this warning.

No Dump Devices Configured Warning

After cold-installing HP-UX 11i v2, you may see the following warning message while rebooting your system:

```
WARNING: No dump devices are configured.  Dump is disabled.
Starting the STREAMS daemons-phase 1
execve(“/sbin/sh”) failed, errno 0xffffffff
execve(“/bin/sh”) failed, errno 0xffffffff
Create STCP device files
Starting the STREAMS daemons-phase 2
```

What to Do

You can safely ignore this warning.

Uninstalling HP-UX 11i v2

If you cannot resolve problems after installing HP-UX 11i v2, then you may want to un-install it. The process depends upon the install process you followed:

- Assuming that you have made a `make_net_recovery` tape using Ignite-UX, boot the system from that media to return the OS and any archived applications to the previous release. This is covered in Chapter 11 of the *Ignite-UX Administration Guide*, available on the Instant Information DVD and on the web:

  `http://docs.hp.com`

  If you do not use Ignite-UX or do not have a current `make_net_recovery` tape, read on....

- If your applications and data are on a separate disk from the OS, cold-install the previous OS. This ensures a clean OS installation, removing all previous upgrade and patch information.

- If applications and/or data are on the same volume with the OS, boot from the previously-saved system recovery tape to return to a previous OS. These “expert recovery” processes are in Chapter 11 of the *Ignite-UX Administration Guide*.

To determine which applications are on the system and where they are located, use `swlist`. If you only need to remove applications or patches from the system, use `swremove`. See the *Software Distributor Administration Guide* for details.

Restrictions with Netscape Communicator

Netscape 4.x Unbundles during Update

When updating from HP-UX 11i v1.6 to HP-UX 11i v2, Netscape 4.x will become unbundled. You may see an error message similar to the following after running `swverify`:

```
# Product(s) not contained in a Bundle:

# NS-communicate B.11.00.01 Netscape Communicator 4.79
```

What to Do

You can still use the product, but it will not `swverify` correctly. Netscape 4.x is not supported on HP-UX 11i v2, so we recommend you upgrade to the Mozilla Application Suite.

For more information, see the web site:

`http://www.hp.com/go/mozilla`

Netscape 7.0 Aborts with ja_JP.utf8 Locale

Netscape 7.0 aborts immediately or soon after it is invoked in ja_JP.utf8.

What to Do

Select another Japanese locale. To see which locales are available, use the `locale -a` command.

For more information see *locale* (1).

Character-code Handling with Perl

Although Perl 5.6.1 does not directly support wide characters, its experimental support of Unicode may be a suitable solution. JPerl 5.005_003 is another solution to handle Japanese multi-byte characters albeit by an older version of Perl.

What to Do

Get the patch `jperl5.005_03` and apply it to Perl. This patch is open source and available at a number of non-HP FTP sites.

Follow these steps:

Step 1. Get the Perl 5.005_03 source files from **`http://devresource.hp.com`**

Step 2. Download patch `jperl5.005_03` from an open-source Perl site.

Step 3. Apply the patch to the source code, and build it.

NOTE

Once patched with `jperl5.005_003`, you cannot use Perl as Mod_perl under the HP Apache-based Web server.

C Controlling Memory Utilization of VxFS 3.5 on HP-UX 11i v2

This appendix discusses the effect of two VxFS tunables, `vx_ninode` and `vx_bc_bufhwm`, on system memory consumption and provides guidelines on setting them for machines with relatively low RAM.

What You Will Find in This Appendix

- "Introduction" on page 156
- "Controlling the inode Cache" on page 157
- "Controlling the Buffer Cache" on page 158
- "Conclusion" on page 159

Introduction

VxFS 3.5 resorts to caching objects in memory as a way to improve performance. Most of the memory consumed by VxFS is used to cache inodes (in the inode cache) and metadata (in the buffer cache). The sizes of these caches and the behavior of VxFS are controlled by a set of tunables. You can tailor the performance of VxFS to meet a variety of usage scenarios while taking into account variations in machine configurations *via* the use of these tunables.

The default settings of these tunables are meant to provide good performance for typical deployment configurations. However, these default values can result in the VxFS driver consuming more memory, especially when the file systems are stressed (under heavy file system load). For machines low on RAM, these tunables may need to be manually turned down depending on the expected use of the machine and the performance required of the file system.

VxFS 3.5 exposes two global tunables, `vx_ninode` and `vx_bc_bufhwm`, that control the size of the inode cache respectively and thereby affect system memory consumption by the file system driver.

This appendix discusses when and why the sizes of the inode and buffer caches need to be tuned down from their default values in certain configurations. The following sections describe these tunables in detail as well as the effects of changing their default values.

Controlling the inode Cache

As a matter of course, VxFS file systems allocate and free up inodes as required by the load on the file system. VxFS caches these inodes for better performance (faster lookups). In general, larger inode caches help file systems perform better for file/web server loads. The global (static) tunable `vx_ninode` represents the maximum possible size of the VxFS inode cache.

Normally, the size of the inode cache is decided (auto-tuned) at boot time by VxFS depending on the amount of physical memory in the machine, provided that the value of `vx_ninode` is set to zero (default).

However, systems low on RAM (typically less than or equal to 1GB/CPU) may not require a large inode cache if file systems are not exposed to file/web server loads, or file system performance is not critical. It is recommended that the value of `vx_ninode` be set to more than that of *`nfile`*, an HP-UX tunable that represents the maximum number of file descriptors.

Controlling the Buffer Cache

VxFS 3.5 implements a private buffer cache used exclusively for metadata. The allocations made for this buffer cache are not static but grow and shrink during system usage, depending on the load on the file system. The global (static) tunable `vx_bc_bufhwm` represents the maximum possible size of the VxFS buffer cache.

The maximum size of the metadata buffer cache is decided (auto-tuned) at boot time based on system memory size, provided that the value of `vx_bc_bufhwm` is set to zero (default).

As with the tunable `vx_ninode`, a large metadata buffer cache can help improve file system performance especially during metadata-intensive loads (stat, create, remove, link, lookup operations).

However, systems low on RAM (having typically 1GB/CPU or less) may not need a large metadata buffer cache if the file system load is not metadata-intensive or performance is not critical. In such circumstances, the value of `vx_bc_bufhwm` can be manually tuned down, subject to a minimum of 6144 (6MB).

Conclusion

VxFS uses in-memory caches for objects that result in improved file system performance. The cache sizes are controlled by tunables that are auto-tuned at boot time by the driver. For situations where the auto-tuned values are not optimal, you are provided with the ability to set these tunables.

D Software Distribution Media

This appendix describes the Operating Environments and media contents.

What You Will Find in This Appendix

- "HP-UX 11i v2 Operating Environments at a Glance" on page 162
- "HP-UX 11i v2 Software and Driver Bundle Type Definitions" on page 169
- "HP-UX 11i v2 Core Software Bundles" on page 170
- "HP-UX 11i v2 Always-Installed Software Bundles" on page 171
- "HP-UX 11i v2 Always-Installed Network & Mass Storage Drivers" on page 174
- "HP-UX 11i v2 Default-Installed Software Bundles" on page 175
- "HP-UX 11i v2 Selectable Software Bundles" on page 177
- "HP-UX 11i v2 Selectable Network Drivers" on page 178

HP-UX 11i v2 Operating Environments at a Glance

Overview

Operating Environments are tested and integrated application bundles designed to work with the operating system and provide the functionality needed for your system's purpose. The following lists the currently available HP-UX 11i v2 OEs:

- **HP-UX 11i v2 Foundation Operating Environment (FOE)** — Designed for the demands of Web servers, content servers and front-end servers, this OE is provided at no-charge and includes applications such as HP-UX Web Server Suite, Java, and Mozilla Application Suite. This OE is bundled as `HPUX11i-OE`. For more details, see "HP-UX 11i v2 Foundation OE (FOE)" on page 163.
- **HP-UX 11i v2 Enterprise OE (EOE)** — Designed for database application servers and logic servers, this OE is an extra-cost package containing the HP-UX 11i Foundation OE and additional applications such as GlancePlus Pak to enable an enterprise-level server. This OE is bundled as `HPUX11i-OE-ENT`. For more details, see "HP-UX 11i v2 Enterprise OE (EOE)" on page 165.
- **HP-UX 11i v2 Mission Critical OE (MCOE)** — Designed for the large, powerful back-end application servers and database servers that access customer files and handle transaction processing, this OE is an extra-cost package containing the Enterprise OE, plus applications such as MC/ServiceGuard and Workload Manager to enable a mission-critical server. This OE is bundled as `HPUX11i-OE-MC`. For more details, see "HP-UX 11i v2 Mission Critical OE (MCOE)" on page 166.
- **HP-UX 11i v2 Minimal Technical OE (MTOE)** — Designed for workstations running HP-UX 11i v2, this OE is provided at no charge and includes the Mozilla Application Suite, Perl, VxVM, and Judy applications, plus the OpenGL Graphics Developer's Kit. This OE is bundled as `HPUX11i-MTOE`. For more details, see "HP-UX 11i v2 Minimal Technical OE (MTOE)" on page 166.

- **HP-UX 11i v2 Technical Computing Operating Environment (TCOE)** — Designed for both compute-intensive workstation and server applications, this OE is an extra-cost package containing the MTOE plus extensive graphics applications and Math Libraries. This OE is bundled as `HPUX11i-TCOE`. For more details, see “HP-UX 11i v2 Technical Computing Operating Environment (TCOE)” on page 168.

The following table details the supported operating environments for HP Servers and Workstations.

The operating environments are represented as follows:

FOE	Foundation Operating Environment
EOE	Enterprise Operating Environment
MCOE	Mission Critical Operating Environment
MTOE	Minimum Technical Operating Environment
TCOE	Technical Computing Operating Environment

Table D-1 Supported Operating Environments

	FOE	EOE	MCOE	MTOE	TCOE[1]
HP Commercial Servers	X	X	X		X
HP Workstations (and Technical Servers)				X	X

1. You can use TCOE on either workstations or compute-intensive technical servers.

HP-UX 11i v2 Foundation OE (FOE)

The HP-UX 11i v2 Foundation Operating Environment is the standard OE from which the Enterprise OE and Mission Critical OE have been derived by adding appropriate applications. The HP-UX 11i v2 Foundation OE includes the base 64-bit HP-UX operating system, plus the following features:

Always-Installed Features

- Event Monitoring System
- FDDI (PCI)
- FibreChannel (PCI)
- Gigabit Ethernet (PCI)
- Gigabit Ethernet Next Generation (PCI)
- HP CIFS Client
- HP CIFS Server
- HP WBEM Services for HP-UX
- HP-UX Kernel Configuration
- iEther (PCI)
- instant Capacity on Demand
- Logical Volume Manager
- nPartition Provider
- ONC+
- Online Diagnostics
- PAM Kerberos
- Peripheral Device Tool
- Runtime Plug-in (JPI) for Netscape/Mozilla for the Java™ 2 Platform v1.3 and v1.4
- SCSI U320-00
- Software Distributor
- SWGETTOOLS
- Update-UX
- VERITAS File System (base VxFS/JFS)
- VERITAS Volume Manager (base)

Default-Installed Features

- GTK+ Libraries
- HP-UX Bastille
- HP-UX IPFilter
- HP-UX Secure Shell
- HP-UX Web Server Suite (including HP-UX Apache-based Web Server, HP-UX Tomcat-based Servlet Engine, HP-UX Webmin-based Admin, and HP-UX XML Web Server Tools)
- Install-Time Security
- Java SDK v1.3 and v1.4
- Judy Libraries
- Mozilla Application Suite
- Mozilla Source
- MySQL

- Netscape 7
- Partition Manager
- Perl
- Runtime Environment (RTE) for the Java™ 2 Platform v1.3 and v1.4
- Secure Patch Check
- Servicecontrol Manager

Selectable Features

- ATM-00
- HP-UX Host Intrusion Detection System (HIDS) (servers only)
- HP-UX Install Utilities
- HyperFabric
- Ignite-UX
- Java (Out of Box) Tunable
- Pay Per Use
- PCI MUX
- Security Level 10
- Security Level 20
- Security Level 30
- Software Package Builder
- Token Ring

HP-UX 11i v2 Enterprise OE (EOE)

The HP-UX 11i v2 Enterprise Operating Environment (EOE) is targeted especially for database application servers and logic servers. In addition to the features found in the HP-UX 11i v2 Foundation Operating Environment (described in “HP-UX 11i v2 Foundation OE (FOE)” on page 163), the Enterprise OE includes the following additional features:

Always-Installed Features

- Event Monitoring Service
- MirrorDisk/UX
- VERITAS File System (full VxFS/OnlineJFS v3.5)
- GlancePlus Pak
- HP Process Resource Manager

Default-Installed Features

- See “HP-UX 11i v2 Foundation OE (FOE)” on page 163

Selectable Features

- See “HP-UX 11i v2 Foundation OE (FOE)” on page 163

HP-UX 11i v2 Mission Critical OE (MCOE)

The HP-UX 11i v2 Mission Critical Operating Environment (MCOE) is a high-availability Operating Environment for HP servers. In addition to the features found in the Foundation and Enterprise operating environments, the Mission Critical OE includes the following features:

Always-Installed Features

- Enterprise Cluster Master Toolkit
- MC/ServiceGuard
- MC/ServiceGuard NFS Toolkit
- Cluster Object Manager
- Workload Manager
- Workload Manager Toolkits

Default-Installed Features

- See “HP-UX 11i v2 Foundation OE (FOE)” on page 163

Selectable Features

- See “HP-UX 11i v2 Foundation OE (FOE)” on page 163

HP-UX 11i v2 Minimal Technical OE (MTOE)

The Minimal Technical Operating Environment (MTOE) is the smallest and most fundamental OE that is defined specifically for HP workstations. It exists to offer an HP-UX 11i v2 solution to the customer who is interested in a low-cost HP Workstation and a correspondingly basic Operating Environment. The Minimal Technical Operating Environment is directed to the Workstation OEM market and to those customers for whom the Technical Computing Operating Environment (TCOE) is not a suitable solution.

The MTOE contains all the base functionality that is common to the other four OEs, including the base 64-bit HP-UX Operating System, network drivers, and some of the other always-installed features. However, compared to the Technical Computing Operating Environment, the set of additional features is greatly reduced.

The MTOE is positioned to deliver a lean set of high-demand applications that do not increase purchase cost, support cost, or license cost over the base operating system.

The HP-UX 11i v2 Minimal Technical Operating Environment includes the following features:

Always-Installed Features

- Event Monitoring System
- FDDI (PCI)
- FibreChannel (PCI)
- Gigabit Ethernet (PCI)
- Gigabit Ethernet Next Generation (PCI)
- HP WBEM Services for HP-UX
- HP-UX Kernel Configuration
- iEther (PCI)
- instant Capacity on Demand
- nPartition Provider
- ONC+
- Online Diagnostics
- OpenGL
- Peripheral Device Tool
- SCSI U320-00
- Software Distributor
- Technical System Configuration (TechSysConf)
- SWGETTOOLS
- Update-UX
- USB
- VERITAS File System (base VxVS/JFS)
- VERITAS Volume Manager (base)

Default-Installed Features

- See “HP-UX 11i v2 Foundation OE (FOE)” on page 163

Selectable Features

- See “HP-UX 11i v2 Foundation OE (FOE)” on page 163

HP-UX 11i v2 Technical Computing Operating Environment (TCOE)

Like the Minimal Technical Operating Environment, the Technical Computing Operating Environment (TCOE) contains all the base functionality that is common to the other four OEs, including the base 32/64-bit HP-UX Operating System, network drivers, and other always-installed functionality. While it is *not* a superset of the Foundation 11i v2 OE, it *is* a superset of the Minimal Technical OE. Unlike the Minimal Technical OE, however, the Technical Computing OE is available on both technical servers and workstations.

In addition to the features found in the HP-UX 11i v2 Minimal Technical OE, the HP-UX 11i v2 Technical Computing Operating Environment includes the following features:

Always-Installed Features

- HP CIFS Client
- HP CIFS Server
- PAM Kerberos
- Runtime Plug-in (JPI) for Netscape/Mozilla for the Java™ 2 Platform v1.3 and v1.4
- HP 3D Technology for the Java™ 2 Platform
- HP MLIB
- HP Message Passing Interface (MPI)

Default-Installed Features

- See “HP-UX 11i v2 Foundation OE (FOE)” on page 163

Selectable Features

- See “HP-UX 11i v2 Foundation OE (FOE)” on page 163

HP-UX 11i v2 Software and Driver Bundle Type Definitions

The HP-UX 11i v2 media contains all of the software and network driver bundles for your system to run the latest version of HP-UX 11i v2. Additional software and network driver bundles are included, which you may choose to either select or deselect prior to install or update. HP-UX 11i v2 contains three types of bundles:

- Always-Installed: Software and network driver bundles required by HP-UX 11i v2. Other bundles included as part of your operating environment are also always-installed. Examples include the core OS bundles, some software bundles, and network drivers. For a detailed listing of always-installed bundles see:
  - “HP-UX 11i v2 Core Software Bundles” on page 170
  - “HP-UX 11i v2 Always-Installed Software Bundles” on page 171
  - “HP-UX 11i v2 Always-Installed Network & Mass Storage Drivers” on page 174
- **Default-Installed**: Software bundles that are installed by default. You can manually deselect the bundles before you install or update system. Examples include Mozilla and the HP-UX Web Server Suite bundles. For a detailed list of default-installed bundles see:
  - “HP-UX 11i v2 Default-Installed Software Bundles” on page 175
- **Selectable**: Software bundles that are *not* installed or updated by default. You must manually select these bundles before you install or update your system. Examples include Ignite-UX and security. For a detailed list of selectable bundles see:
  - “HP-UX 11i v2 Selectable Software Bundles” on page 177

HP-UX 11i v2 Core Software Bundles

The following software bundles comprise the base software installed for all operating environments:

Table D-2 HP-UX 11i v2 Core Software Bundles

Bundle Name	Description
HPUXBaseOS	HP-UX Base OS installation bundle(64-bit)
HPUXBaseAux	HP-UX Base Auxiliary bundle: Additional OS software (shown with bundle tag): HP-UX Kernel Configuration (Casey) EMS Framework (B7609BA) ONC (ONCplus) SWGETTOOLS (SWGETTOOLS) HP-UX Peripheral Device Tool (PeriphDev) Software Distributor (SD) Update UX (UPDATE-UX)
CDE-xxx	Common Desktop Environment bundle (xxx is language variable)

HP-UX 11i v2 Always-Installed Software Bundles

In addition to the core software bundles installed in Table D-2, the following software bundles are installed by operating environment (for the latest version information, please see the *Read Before Installing or Updating to HP-UX 11i v2* DVD booklet):

The operating environments are represented as follows:

FOE Foundation Operating Environment

EOE Enterprise Operating Environment

MCOE Mission Critical Operating Environment

MTOE Minimum Technical Operating Environment

TCOE Technical Computing Operating Environment

Table D-3 HP-UX 11i v2 Always-Installed Software Bundles (by OE)

Description	Bundle	FOE	EOE	MCOE	MTOE	TCOE
3D Graphics Development Kit and Runtime Environment (RTE) for OpenGL	B6836AA				X	X
Cluster Object Manager	B8324BA			X		
Enterprise Cluster Master (ECM) Toolkit	T1909BA			X		
GlancePlus Pak	B3701AA		X	X		
High Availability (HA) Monitors	B5736DA		X	X		
HP CIFS Client	B8724AA	X	X	X		X
HP CIFS Server	B8725AA	X	X	X		X

Table D-3 HP-UX 11i v2 Always-Installed Software Bundles (by OE)

Description	Bundle	FOE	EOE	MCOE	MTOE	TCOE
HP MLIB Mathematical Software Library	B6061AA					X
HP WBEM Services for HP-UX	B8465BA	X	X	X	X	X
Instant Capacity on Demand (iCOD)	B9073BA	X	X	X	X	X
Java 2 JPI v1.4	T1458AA	X	X	X		X
Java JPI v1.3	T1455AA	X	X	X		X
Java3D for JRE v1.3	T1868AA					X
Java3D for JRE v1.4	T1869AA					X
MC/ServiceGuard	T1905BA			X		
MC/ServiceGuard NFS Toolkit	B5140BA			X		
Message Passing Interface (MPI)	B6060BA					X
MirrorDisk/UX	B2491BA		X	X		
nPartition Provider	NPar	X	X	X	X	X
Online Diagnostics: EMS Hardware Monitors & Support Tool Bundles	OnlineDiag	X	X	X	X	X
PAM Kerberos	J5849AA	X	X	X		X
Process Resource Manager	B3835DA	X		X		
Technical System Configuration	TechSysConf				X	X

Table D-3 HP-UX 11i v2 Always-Installed Software Bundles (by OE)

Description	Bundle	FOE	EOE	MCOE	MTOE	TCOE
Veritas File Systems (VxFS v3.5)/ OnlineJFS v3.5	B3929DA		X	X		
Veritas Volume Manager (VxVM) v3.5	Base-VXVM	X	X	X	X	X
Workload Manager (WLM)	B8843CA			X		
Workload Manager Toolkits	T1302AA			X		

HP-UX 11i v2 Always-Installed Network & Mass Storage Drivers

The following drivers are always-installed on your system (all operating environments):

Table D-4 HP-UX 11i v2 Always-Installed Network Drivers

Contents / Description	Supported IO Adapters	Driver
PCI FDDI	A3739B	`FDDI-00`
FibreChannel Tachlite	A6795A A5158A	`FibrChanl-00`
PCI GigEther 1000B-SX	A4926A	`GigEther-01`
PCI GigEther 1000B-T	A4929A	`GigEther-01`
PCI Gigabit Ethernet (NextGen)	A6825A A6847A A6794A A6865A	`GigEther-01`
PCI IEther (10/100BT)	A6825A A6847A	`IEther-00`
Core IO 10/100B-TX Drivers in `HPUXBaseOS` bundle	A5506A A5230A	Built-in (Core IO) 10/100B-TX support
Core IO SCSI Drivers in `HPUXBaseOS` bundle	A5838A A5149A A5150A A6828A A6829A	Built-in (Core IO) SCSI support

HP-UX 11i v2 Default-Installed Software Bundles

The following software bundles are installed on all operating environments by default. You can deselect any of these bundles before you install or update your system.

Table D-5 HP-UX 11i v2 Default-Installed Software Bundles (all OEs)

Description	Bundle Name
HP-UX Bastille Security Tool	B6849AA
GTK+ Libraries	B6848BA
Install-Time Security Infrastructure	Sec00Tools
HP-UX IPFilter	B9901AA
Judy Libraries	Judy
Mozilla Application Suite	MOZILLA
Mozilla Source Distribution	MOZILLAsrc
MySQL	MySQL
Netscape 7.0	B6835AA
Partition Manager	ParMgr
Perl 5.8 Programming Language	perl
HP-UX Secure Shell	T1471AA
Security Patch Check	B6834AA
Servicecontrol Manager	B8339BA
HP-UX Web Server Suite	
HP-UX Apache-based Web Server	hpuxwsApache
HP-UX Tomcat-based Servlet Engine	hpuxwsTomcat

Table D-5 HP-UX 11i v2 Default-Installed Software Bundles (all OEs) (Continued)

Description	Bundle Name
HP-UX Webmin-based Admin	hpuxwsWebmin
HP-UX XML Web Server Tools	hpuxwsXml
Java™ Bundles	
Java 2 SDK v1.3	B9788AA
Java 2 JRE v1.3	B9789AA
Java 2 JDK v1.4	T1456AA
Java 2 JRE v1.4	T1457AA

HP-UX 11i v2 Selectable Software Bundles

The following bundles are *not* installed or updated by default. You must select the desired bundles prior to installing or updating your system.

Table D-6 HP-UX 11i v2 Selectable Software Bundles (all OEs)

Description	Bundle Name
HP-UX Installation Utilities (Ignite-UX)	B5725AA
HP-UX Host Intrusion Detection System (HIDS) (Servers Only)	J5083AA
Java (Out of Box) Tunable	JAVAOOB
Pay Per Use	T2351AA
Security Level 10	Sec10Host
Security Level 20	Sec20MngDMZ
Security Level 30	Sec30DMZ
Software Package Builder (SPB)	SwPkgBuilder

HP-UX 11i v2 Selectable Network Drivers

The following network drivers are *not* installed or updated by default. You must select the desired bundles prior to installing or updating your system.

Table D-7 HP-UX 11i v1 Selectable Network Drivers

Description	Supported IO Adapters	Bundle Name
ATM (PCI)	A5513A	`ATM-00`
PCI HyperFabric II	A6386A	`HyperFab-00`
MUX (PCI)	A6748A A6749A	`TermIO-00`
Token Ring (PCI)	A5783A	`TokenRing-00`

E Web Resources

This appendix lists the many resources on the web:

- Latest HP-UX 11i v2 information:

  http://docs.hp.com/hpux/os/11iv2

  http://forums.itrc.hp.com

  http://www.hp.com

  Local-language user guides:

  http://docs.hp.com

  Use the navigation menu to select a language.

- Latest Itanium-based server and workstation information:

  http://www.hp.com/products1/unix/operating/choice/hpux_itanium.html

- Latest information on HP-UX software releases:

  http://www.software.hp.com/RELEASES-MEDIA

- Latest versions of HP-UX 11i v2 documentation, including release notes, guides, and white papers:

  http://docs.hp.com/hpux/os/11iv2

- Downloading HP-UX patches and patch information from the HP IT Resource Center web:

  http://itrc.hp.com

  Under Maintenance and Support, select the appropriate patching tools. To receive HP Security Bulletins, select “subscribe to security bulletins & patch digests.

- International information:

  http://www.hp.com

  Select a country or region if you are not automatically directed.

- High-availability products:

  http://docs.hp.com/hpux/ha

- HP-UX Software Transition Kit:

  http://devresource.hp.com/STK

- HP Technical Documentation feedback form:

  http://docs.hp.com/assistance/feedback.html

- Ignite-UX information and download:

  http://software.hp.com/products/IUX

- Partition Manager

  http://www.software.hp.com/products/PARMGR

- Safety and ergonomic information:

  http://www.hp.com/ergo

- Servicecontrol Manager:

  http://software.hp.com/products/SCMGR

- Software Distributor:

  http://software.hp.com/products/SD_AT_HP

- System administration for HP-UX systems:

  http://docs.hp.com/hpux/os/11iv2

  http://forums.itrc.hp.com

- All HP-specific documentation included in the HP Apache-based Web Server software you can find online after installation:

  http://*yourserver.com*/hp_apache_docs

  Or you can find it in the /opt/apache/hp_apache_docs/ directory. The latest information for the HP Apache-based Web Server is at the following web site:

  http://www.hp.com/go/webserver

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